

QUARTERLY REVIEW
of
OTORHINOLARYNGOLOGY
and
BRONCHO-ESOPHAGOLOGY

Vol. 8 No. 3



September 1949

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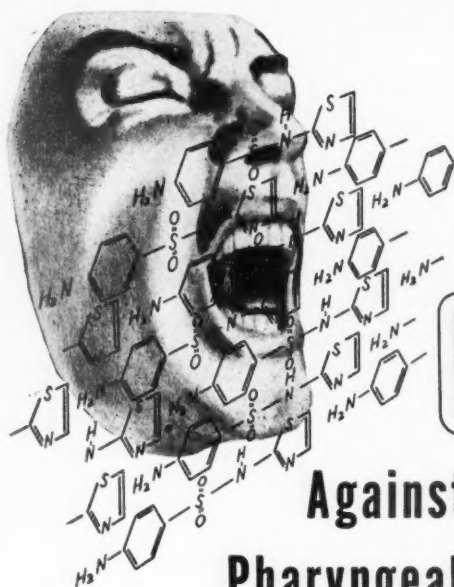
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*Neiman, I. S.: Prophylactic Value of Sulfathiazole,
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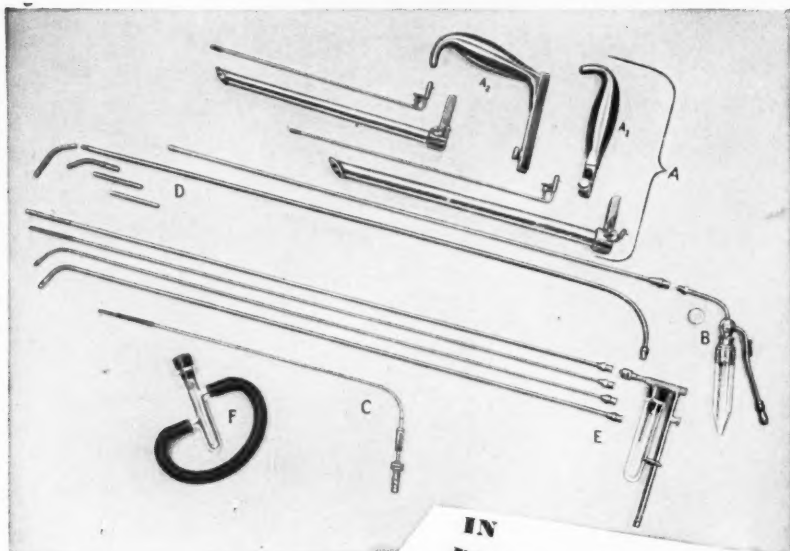
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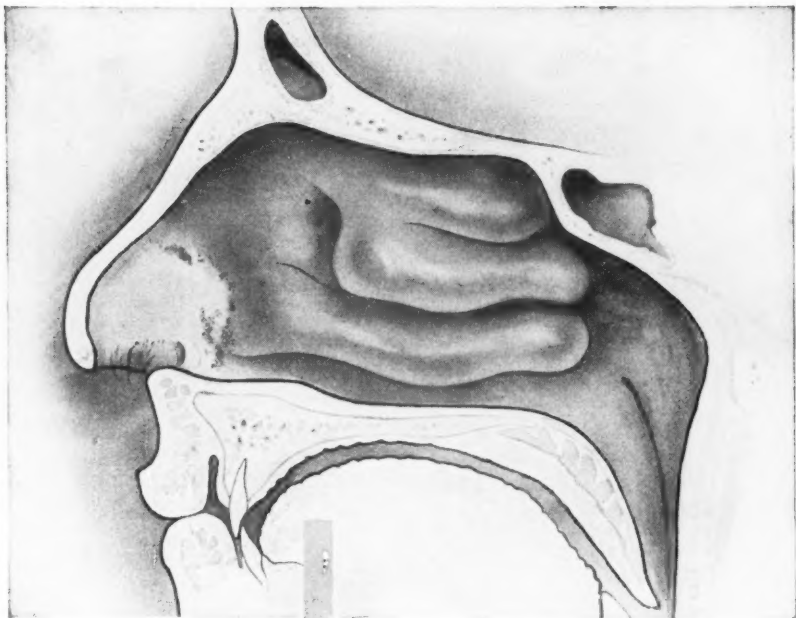
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OTOLOGY

1. Audiology

On the Perception of Loudness by Bone Conduction. (*Über die Lautstärkeempfindung bei Knochenleitung.*) J. Zwislocki, *University Clinic for Diseases of Ear, Nose and Throat, Basel, Switzerland.* Acta oto-laryng. 37: 239-44, June 1949.

Simple experiments conducted to investigate the behavior of the perception of loudness by bone conduction showed air conduction to produce the same behavior, provided that the sound was heard either binaurally or exclusively monaurally. However, on leading air conduction tone to one ear and bone conduction tone to both ears, the bone conduction tone appeared relatively louder. The circumstance is noted in persons with normal hearing when the bone receiver is applied to one mastoid bone while the opposite mastoid bone remains unmasked. Therefore, monaural hearing by bone conduction is ensured only if the ear not being tested is masked by means of a noise. 6 references. 1 figure.

Measurement of Sensation. I. Vibratory Sensation. John A. Toomey, M.D., Leona Kopecny, B.S., and Sally Mickey, B.A., *Western Reserve University, Cleveland, Ohio.* Arch. Neurol. & Psychiat. 61: 663-71, June 1949.

This paper, which analyzes the perception of vibration with the aid of the pallesthesia meter, is one of a series on sensation and its measurement. Although the ability to appreciate vibration is dependent on the capacity to perceive repeated tactile and pressure sensory stimuli, it is emphasized that the pallesthesiometer is essentially an acoustic instrument, the frequencies employed being well within the auditory range. When, therefore, the threshold of appreciation of vibration is determined in various parts of the body, the effect is to measure the ability of the subject to detect sound waves by means

of an extradural mechanism. The present study was undertaken to determine whether non-opiate analgesics would have any effect on thresholds of vibratory sensitivity.

The biosthesiometer, or pallesthesiometer, measures thresholds for appreciation of vibration. Acetylsalicylic acid, 15 gr., raised the threshold for appreciation of vibration in 66% of the subjects tested. Sensitive persons could be used as subjects for testing the effect of analgesic drugs on the vibration threshold. Of 123 subjects, 66% yielded positive results, 12% reversals, and 21% normal responses. The tuning fork has its limitations in measuring vibratory sensitivity and the instrument here described discloses changes not detected by the tuning fork. 8 references. 6 figures.

On Rendering Hearing Tests by Speech Homogeneous. *Lennart Sjöström, University of Turku, Turku, Finland. Acta otolaryng. 37: 253-55, June 1949.*

The author suggests that hearing tests use words, rather than numerals, for greater objectivity. He recommends the following principles: the words used must be the same; the same person should always conduct the examination, if possible; the strength, pitch and timbre of the examiner's voice should be constant; and articulation must be distinct. In order that hearing tests may be homogeneous (results of different examiners may then be compared) six groups of words were arranged by the author and a recording made of them. The principles which guided the arrangement of these words were: familiarity of words; grouping such that words and components of them were dissimilar; inclusiveness of sounds; lack of meaningful suggestion.

The recording should be played on a machine in which the volume can be regulated and expressed in decibels, so that exact values of the volume may be obtained. With this method hearing tests may be compared, provided the same type of apparatus is used, even though they were conducted by different examiners in different places. 6 references. 2 charts.

Treatment of Certain Types of Deafness by Roentgen Ray Therapy. *Nelson A. Youngs and Philip H. Woutat, Grand Forks Clinic, Grand Forks, N. D. Ann. Otol., Rhin. & Laryng. 57: 984-91, Dec. 1948.*

The authors treated 116 patients for deafness caused by lymphoid tissue (hyperplasia), obstruction of the eustachian orifices, or lymphoid infiltration along the eustachian tubes or in the middle ear resulting from chronic inflammatory changes.

Sixty-three of the 116 treated were under 15 years of age; fifty-three were in an age group between 15 and 62 years old. In those patients less than 15 years old 58% obtained normal hearing. In those over 15 years of age 11.9% obtained normal hearing and 32% obtained marked improvement.

All patients were treated with 200 KV peak, 0.5 mm. copper plus 1.0 mm. aluminum filtration, 50 cm. target skin distance HVL 0.9 mm. copper. Each treatment consisted of a dose of 125 r to 150 r measured in air to each of two ports one on each side of face. The ports measured from 4 by 5 cm. to 5 by 6 cm. directed to include middle ear, eustachian tube and nasopharynx. Four treatments at weekly intervals were given.

The authors have followed some of those treated since 1937 and have noted no ill effects from this form of treatment. 18 references. 2 tables.—*Author's abstract.*

Otologic Examinations in Hepatitis Epidemica. *J. Varga, Bródy Hospital Budapest, Hungary. Acta oto-laryng. 36: 356-62, Sept.-Dec. 1948.*

The author examined the organs of hearing and equilibrium in 30 cases of epidemic hepatitis, of whom 5 suffered lesions of the eighth cerebral nerve. In 3 cases, hypacusis of perception type was observed. The lesion was rather considerable, with sudden onset, prior to the manifestation of the hepatitis, and in 2 cases the outbreak of the jaundice was followed by rapid recovery. The third patient had formerly had deficient hearing, and the deterioration occurring during the hepatitis did not recede completely. In one patient, the hypacusis was associated with other nervous symptoms, e.g., neuralgia of the cervical and brachial plexus, unilateral lack of the abdominal reflex, and positive Babinski's and Oppenheim's signs. These symptoms disappeared after 2 weeks. In patients 1 and 2, diseases of the middle ear occurred. During the hepatitis, patient 4 experienced dizziness of Ménière's type, occurring in attacks. The caloric excitability of the 2 sides was rather different. This patient had previously suffered migraine for some time.

The otologic changes found in these patients differed from those observed in other virus diseases, since deafness was not complete and all but one patient recovered. The site and mechanism of the lesion can not be clarified. The fact that the symptoms of hepatitis were preceded by nervous ones leads the author to assume that the virus is disseminated in the organism during the pre-icteric stage; there is no location of the lesion apart from the site of minor resistance (i.e., the ear) weakened by earlier processes. When the hepatitis became manifest the nervous symptoms had already ceased. The processes were mild, probably because they were due to the circulatory disorder of the end apparatuses. Since vasoneurosis was present in all patients, vasospasms may have played a role in reducing resistance. 24 references.—*Author's abstract.*

A Case of Traumatic Deafness After a Lightning Stroke. *Carl Højberg Christensen, Brønderslev Hospital, Hjørring, Denmark. Acta oto-laryng. 36: 451-55, Fasc. 5-6, Sept.-Dec. 1948.*

The writer reports a case of slight bilateral, traumatic otitis with increasing neulabyrinthopathia cochlearis and slight neurolabyrinthopathia vestibularis occurring later in a 33 year old woman who was struck by lightning. Later a specific, bilateral, electrical cataract supervened. In the course of two years a progressive loss of hearing of speech was ascertained, whereas the audiogram remained unchanged. It is stressed that the electrical lesion of the organ of hearing gives rise to a progressive loss of hearing, as has been previously reported by Caussè. 6 references. 2 figures (graphs).—*Author's abstract.*

2. External Ear

Ph of the Cutaneous Surface of the External Auditory Canal. A Study of Twenty-Seven Infants, Forty-Four Children and Sixty Adults. Noah D. Fabricant and M. A. Perlstein, Chicago, Ill. Arch. Otolaryng. 49: 201-209, Feb. 1949.

By virtue of its exposed position, the external auditory canal is open to invasion by numerous micro-organisms. Several factors play an important role in the protection afforded by the normal human skin against bacterial invasion, one of the most important being the pH of the skin. Previous investigations have revealed that the seborrheic areas of the body are more alkaline than other parts of the skin's surface; that the alkaline areas are less bactericidal than the rest of the skin, thus being predisposed to cutaneous infection; that in most cases of vesicular eczema there is a shift of the pH of the skin toward the alkaline side; and that moisture, maceration, dead horny tissue and relative alkalinity are four favorite conditions for the propagation of many forms of fungi.

In the present investigation, measurement of the pH of the cutaneous surface of the external auditory canal was undertaken in a series of 131 subjects (27 infants, 44 children and 60 adults) with no apparent lesions in their external auditory canals and either with no visible cerumen or with minimal amounts. A specially adapted glass electrode was employed in conjunction with the Coleman electrometer.

In the group of adult male subjects, the pH range of the skin of the external auditory canal was found to be from 5.0 to 7.8. In the group of adult female subjects, the pH range of the skin of the external auditory canal was found to be from 5.0 to 7.6. Of 30 adult male subjects, 23 evinced pH values for the skin within the acid range; 6, values within the alkaline range, and 1, a neutral pH. Of 30 women, 21 evinced pH values for the skin within the acid range, 6 within the alkaline range, and 3 within the slightly acid, slightly alkaline range of fluctuations. From these observations it appears that there is little difference in the pH range of the skin of the normal external auditory canal of adult male and adult female subjects of similar age groups. The pH values fall chiefly within the acid range.

In the group of male infants, the pH range of the skin of the external auditory canal was found to be from 5.6 to 7.6. In the group of female infants the pH range of the skin of the external auditory canal was found to be from 5.2 to 7.4. Male children, on the other hand, had a range in the pH of the skin from 5.7 to 7.9. Of 14 male infants, 11 evinced pH values for the skin within the acid range, while those for 3 subjects fell within the alkaline range. Of 13 female infants, 12 evinced pH values for the skin within the acid range and but 1 within the alkaline range. Of 23 male children, 10 evinced pH values for the skin within the acid range, 12 within the alkaline range and 1 within a slightly acid, slightly alkaline range of fluctuations. Of 21 female children, 12 evinced pH values for the skin within the acid range, 8 within the alkaline range and 1 within a slightly acid, slightly alkaline range of fluctuations. From these observations it appears

that there is little difference in the pH range of the skin of the normal external auditory canal of male and female infants. The pH values fall chiefly within the acid range. Among children, the tendency for acid pH values is not nearly as distinct as it is for other groups. 8 references. 2 tables.—*Author's abstract.*

Otitis Externa. *Charles W. Rees, Rees-Stealy Clinic, San Diego, Calif. California Med. 70: 288-91, April 1949.*

Otitis externa is one of the most common diseases seen by the otologist. The anatomy of the external ear is reviewed briefly with a summarized description of the canal structure. The pathologic changes which may occur in this area are classified. The etiological agents of inflammation of the external ear structures are discussed, minimizing the importance of fungi as primary invaders. Therapy for symptomatic relief is outlined and the specific action of therapeutic agents is reviewed. 13 references.—*Author's abstract.*

3. Internal Ear

Otologic Aspects of Vertigo. *Joseph J. Fischer, Boston City Hospital, Boston, Mass. New England J. Med. 241: 142-44, July 28, 1949.*

There exists some confusion, not only in the nomenclature, but also in the definitions of vertigo. The chief points of interest to the otolaryngologist are the question as to whether labyrinthine and non-labyrinthine vertigo can be differentiated, and whether in the former one can distinguish between central and peripheral types. Since vertigo does not constitute an objective symptom, differential diagnosis on a scientific basis is impossible. Differential diagnosis based on clinical experience must remain tentative. In differentiating between labyrinthine and non-labyrinthine vertigo, we find that labyrinthine vertigo is rotational, directional or systematic while non-labyrinthine vertigo is non-rotational, non-directional and asystematic. The latter comprises various sensations of dizziness, such as are found in diseases of the cardiovascular system, gastrointestinal disturbances, endocrine disequilibrium, visual disturbances, etc.

Peripheral labyrinthine occurs in paroxysms lasting for a minute or a few minutes. History of the patient may afford important clues. Thus, the establishment of a fistula of the horizontal semicircular canal may coincide with a particularly severe attack of vertigo. The vertigo may arise when the head is suddenly turned or moved. Consciousness is not lost and spontaneous nystagmus is always present during an attack. The course of peripheral vertigo is self-limited. Vertigo of central origin, however, is usually progressive and lasts over a long period. Otoscopic findings are often positive in the peripheral type, usually negative in the central type, whereas neurologic findings are usually negative in the peripheral type and positive in the central type. The central type of vertigo usually develops in quickly developing diseases, whereas in multiple sclerosis or syringobulbia or other diseases of slow development, vertigo is rare or absent. Vertigo also occurs in post-concussional states and in sea- and air-sickness. It is difficult to

explain the mechanism of vertigo in cardiovascular disease, in Ménière's disease, angioneurotic crises, allergy and optic migrane. Vertigo occurs only in the acute exacerbations of multiple sclerosis and is not a common symptom in this condition as erroneously surmised. In simple post-concussional states, vertigo may be the only symptom lasting for years. It is frequently difficult for the otolaryngologist to tell whether vertigo is of psychogenic or organic origin. In cases of sea- and air-sickness, the peripheral labyrinth is usually considered to be the site of the lesion, since deaf mutes do not become seasick. The lack of spontaneous nystagmus in seasickness has been attributed to the fact that this condition is caused by stimulation of the otolith apparatus. In cardiovascular diseases true vertigo belongs to the vasomotor disturbances of the internal auditory artery. A syndrome of vertigo, with loss of hearing for high pitched tones and involvement of the vertical semicircular canals has been attributed to arteriosclerotic changes of the artery supplying the semicircular canals and the portion of the cochlea concerned with perception of high sounds. 7 references. 1 table.

Clinical Record: An Unusual Case of Ménière's Disease. J. Evans, London, Eng. J. Laryng. & Otol. 63: 311-13, May 1949.

The case is reported of a patient, an underwater fitter, who has been deaf 12 years as the result of being brought too quickly to the surface in a caisson. Immediate deafness has become progressive, and twelve months ago he began to have giddy attacks, accompanied by nausea but no vomiting. Two months ago he started to have tinnitus and frequent attacks of vertigo. Diagnosis of Ménière's disease was made and histamine prescribed. Vertigo ceased and tinnitus persisted. Cessation of histamine resulted in recurrence of vertigo, and it was decided to destroy the left labyrinth by alcohol injections. Five mm. of absolute alcohol were injected through a fenestrated lateral canal. The patient was completely deaf following the operation and complained of diplopia, but the vertigo ceased. The pathology of this case is believed to be hemorrhage. Ménière's original case was due to hemorrhage, but the disease is now accepted to be that of endolymph hypertension. It should not be confused with labyrinthine vertigo which follows trauma to the labyrinth. 8 references. 3 figures.

The Effect of Autokinetic Cortical Stimulation on Vestibular Response to an Accelerating Stimulus. (*Influenza di una stimolazione ottocinetica corticale sulla risposta vestibolare indotta da uno stimolo acceleratorio.*) O. Sala, Clinica Otorinolaringoiatrica dell' Università de Padova. Oto-rinolaringol. italiana 17: 341-51, 1948.

Twenty subjects with no ophthalmologic, otologic or neurologic lesions and no spontaneous phenomena of ocular asymmetry were tested for autokinetic excitation. The technic of the tests is described in detail (rotary stimulation in Tönnies stool and Buys-Fischer method). This excluded an

initial labyrinthine stimulation and permitted a phasic response, including a first phase contrary to rotation and a second phase in the direction of the rotation. Tabular data include the direction and rate of rotation, the rotary stimulation (Buys-Fischer method), cortical autokinetic nystagmus, and rotary stimulation of the labyrinth immediately thereafter (Buys-Fischer method). The results indicate that, contrary to the findings of Ohm and Mowrer, cortical autokinetic stimulation in man is incapable of changing the excitability of the vestibular centers. The first phase is of peripheral, the second phase of central origin. Therefore, cortical autokinetic nystagmus does not occur via the vestibular nuclei and the latter cannot be considered as the common anatomic focus for vestibular and autokinetic stimulation. Physiologic synergism would suggest that the two types of stimuli do pass through very closely adjoining anatomic centers and that in processes of summation and inhibition, some common structure may be involved, like the bulbomesencephalic reticular substance involved in the interference mechanism of ocular motor reactions. 32 references. 1 table.

Cochleovestibular Symptomatology in Meningo-Endocraniosis. (*Sintomatologia cocleo-vestibolare nelle meningo-endocraniosi*). G. Ferrari Lelli and G. Gardenghi, *Clinica otorinolaringologica dell' Univers. di Firenze*. Oto-rino-laringol. italiana 17: 359-72, 1948.

Cochleovestibular symptoms have been observed in some cases of internal frontal hyperostosis. Subjective vestibular symptoms are regarded as quite common, occurring in the form of vertigo in 67% of Carr's cases. There have been, however, almost no studies of cochleovestibular function in this condition. An investigation of this function was therefore undertaken by the authors in a series of 20 patients showing definite roentgenologic evidence of the disease. Cochlear examinations were conducted in all cases and the vestibular function was tested by the method of Veits-Fischer. Repeated tests were made and lumbar punctures were performed in as many cases as possible.

Cochleovestibular symptomatology has been considered as rare and secondary in this disease. The results of the present investigation were confirmatory in so far as the cochlear symptoms were concerned. Only one case revealed a unilateral hypoacusia of the internal ear. All the others showed normal function. Dysfunction of the vestibular apparatus was, however, so constant a finding as to present an almost integral part of the syndrome. In more than one-half of the cases, vertigo was mentioned in the anamnesis. Involvement of the vestibular apparatus was even more clearly demonstrated following tests of labyrinthine function, with abnormal results in 18 of 20 cases. The disorder consisted either in hypo- or hyperexcitability. Lunedei's description of chronic frontobasilar phlogosis as the result of changes in tissue reactivity probably caused by bacterial antigens directed attention to foci of infection. Chronic tonsillitis was present in 10 cases, sinusitis in one case and multiple foci of infection in others. The coexistence of sinusitis and frontobasilar phlogosis might be attributable to the reaction of adjacent

tissues described by Bertolotti. Since the disease is not fatal, autopsy material is usually not available, except for more advanced stages.

Frequently labyrinthine stimulation in chronic frontobasilar phlogosis will produce bilateral hyperexcitability, which is believed possibly due to hypertension of the cerebrospinal fluid. In 6 of 7 cases of this type, lumbar puncture revealed increased pressure. In 5 cases of hypoexcitability, on the other hand, the pressure of the cerebrospinal fluid was found normal. 18 references.

Is it Possible to Cover the Fenestra Nov-Ovalis with Shrapnell's Membrane? An Anatomic Study. *Samuel Rosen, Mt. Sinai Hospital, New York, N. Y. Arch. Otolaryng.* 49: 529-34, May 1949.

Since 1938 a dispute has persisted concerning what part of the tympanomeatal plastic flap covers the fenestra nov-ovalis. Lempert stated repeatedly that the fenestra could be covered in every instance by Shrapnell's membrane, which aided in keeping the fenestra permanently open. Fowler Jr., Shambaugh Jr. and Day doubted this hypothesis of an anatomic relationship.

The author performed the fenestration nov-ovalis operation on fifty consecutive adult fresh cadavers and found no instance in which Shrapnell's membrane reached the fenestra. The coverage distance from the short process of the malleus to the upper limit of Shrapnell's membrane was 1.8 mm., whereas the average distance from the short process of the malleus to the fenestra was 5.7 mm. Measurements were made with a $\times 10$ optical loupe. Serial microscopic sections of the flap in relation to the fenestra corroborated the author's findings. 8 references. 1 table. 2 figures.—*Author's abstract.*

Histopathological Investigations on the Localization, Number, Activity and Extent of Otosclerotic Foci. *Bengt Nylén, University of Zurich, Switzerland and the University of Upsala, Sweden. J. Laryng. & Otol.* 63: 321-27, June 1949.

Histologic examination was done on material from 74 cases (121 otosclerotic bones). In many cases other parts of the labyrinthine bony capsule, in addition to the window regions, were involved in the otosclerotic process. As in other reported investigations, this study showed the incidence to be as frequent in men as in women, although in the present series stapes ankylosis was more common in women. The presence of active areas in patients over 50 years of age was not common. This study showed unilateral otosclerosis in slightly more than 25% compared with a range of 15 to 30% reported in other histological series. Pathologic bone changes ("Umbau") were a frequent finding, being fairly common in the semicircular canal capsule (11 cases) and somewhat rare in the cochlear capsule (4 cases). Such changes were also found in the ossicles. The present study did not bear out the theory that pathologic bone changes are a preliminary stage of otosclerosis. The author suggests that the lesions and the bone changes are completely independent processes in the same bone. 32 references. 2 figures.

The Incidence (and Degrees) of Blue Scleras in Otosclerosis and Other Ear Disorders. *Edmund Prince Fowler, New York, N.Y. Laryngoscope* 59: 406-16, April 1949.

A brief review and discussion of the literature is given. The author discusses 568 patients first examined for the blueness of their sclera, and then otologically, and tabulates them in four categories (normal, nerve, otitis media and otosclerosis), and under six degrees of blueness of the scleras. The incidence of blue scleras in those with otosclerosis is 69%, as compared with 10% in normal hearing controls, 16% in nerves, and 21% in otitis media deafness. These percentages and the ratios of males to females are discussed and several significant agreements and disagreements with clinical and autopsy findings are pointed out.

Otosclerosis was diagnosed in 3% of those with white scleras; 12% of those with questionably blue scleras; 35% of those with two or more degrees of blueness; in 50% of those with three or more degrees of blueness; and in 100% of those with four degrees of blueness of the sclera. These, and the other findings, coincide so closely with what should be expected if there is a definite relationship between blue scleras and otosclerosis that they should not be ignored. A large sampling and continuing studies will determine more clearly (especially in families with a positive history of otosclerosis) the importance of the color of the sclera for etiologic investigations, and for a preclinical or prognostic diagnosis of otosclerosis, and above all let us hope for preventive treatment. 11 references. 1 table.

Effect of Pregnancy on Otosclerosis. *H. W. Smith, New York Eye and Ear Infirmary, New York, N. Y. Arch. Otolaryng.* 48: 159-70, Aug. 1948.

The literature since July, 1938 is reviewed in regard to the problem of the effect of pregnancy on otosclerosis. The author presents 73 cases from the files of the New York Eye and Ear Infirmary of otosclerotic women who had had one or more children and gives a statistical study of what effect heredity and childbearing had on the course of their aural disease. The author's statistics are compared with those from the literature.

Of the 73 cases studied, 28 patients (37%) gave a history of their deafness being initiated or, if present, increased by pregnancy. 45 patients (63%) reported that their pregnancies had no effect on their hearing loss. 21 women (29%) gave a history of familial deafness, but a careful cross analysis by the author shows that no definite connection between the presence of familial deafness and pregnancy effecting otosclerosis can be established.

In 22.9% of the 73 patients the onset of hearing loss was initiated by pregnancy: 10.7% occurred with the first child and of these 3.7% had a second child with more loss; 6.8% noted onset of deafness with the second child and of these 1.3% had a third child with more loss; and, finally, 5.4% noted onset of hearing loss with their third child.

In 14.7% of the 73 patients the hearing loss was present prior to pregnancy but further increased by it: 6.8% occurred with the first pregnancy; 3.9% occurred with the first and second pregnancies; 2.6% sustained no

damage by their first pregnancy but did with the second; and, finally, 1.3% had their hearing damaged by the first and second gestation but not with the third.

Two cases from the literature and one that the author presents would seem to indicate that in rare instances otosclerosis improves during pregnancy.

On the basis of the facts from the literature reviewed plus the results of his study, the author is of the opinion that the effect of pregnancy on otosclerosis, and its incidence, is variable and unpredictable. He concludes, therefore, since otosclerosis is not a disease that endangers life, and since hearing aids or successful fenestration surgery may offer relief, that eugenic measures and abortion and sterilization are not indicated in the average case of otosclerosis complicated by pregnancy. 14 references. 4 tables.—*Author's abstract.*

Deafness Following Epidemic Parotitis (Mumps): Report of a Case in a Child. *Roland B. Scott and Robert P. Crawford, Howard University School of Medicine and Freedmen's Hospital, Washington, D. C. Pediatrics 3: 177-80, Feb. 1949.*

A ten year old Negro female was admitted because of deafness. She was born after normal gestation and delivery and talked at one year of age. There was nothing unusual in the case or family history. Two weeks prior to admission there was a swelling of both parotid glands and seven days later there was severe epigastric pain which subsided the next day when the patient vomited twice. Impaired hearing first occurred eight days after parotid gland swelling and gradually became worse until deafness was total. There was tinnitus in the early stages.

On examination speech was low and monotonous. Bone conduction was impaired bilaterally; air conduction was appreciable only in the left ear. The tonsils, adenoids and three carious teeth were removed and catheterization of the eustachian tubes was attempted. The left eustachian tube could be partially entered and the right tube not at all. An audiogram showed marked decrease in air conduction. The child was discharged after two months with no auditory improvement, and this was true about one year later.

Deafness complicating parotitis commonly appears suddenly at the end of the first week. The deafness is often preceded by tinnitus and vertigo. Other symptoms include nystagmus, nausea and vomiting. One or both ears may be involved and deafness is generally total and permanent. The chief causes may involve: labyrinthitis, eighth cranial nerve neuritis, basal acoustic ganglioneuritis of toxic or infectious origin, and basal meningitis. The vomiting, ataxia, tinnitus and hearing loss in the present case are suggestive of labyrinthitis and eighth cranial nerve neuritis. The severe epigastric pain suggests possible pancreatitis. 11 references. 2 tables. 1 figure.

4. Mastoid

A Roentgen-Ray Microspectrographic Investigation of the Inflammatory Destruction of the Mastoid Bone. *Arne Engström, C. A. Hamburger and Sölve Welin, Karolinska Sjukhuset, Stockholm, Sweden. Brit. J. Radiol. 22: 309-24, June 1949.*

The first roentgenologic symptom of bone involvement in mastoiditis is a decrease in the calcium content of the bone. Opinions differ regarding the extent of the pathologico-anatomic changes which appear on x-ray examination as a decrease in calcium content. The present investigation was planned to compare the roentgenographic findings with the clinical and operative findings by roentgenomicrospectrographic analysis. The calcium content in the cell walls of the mastoid process was determined by x-ray microspectrography. The x-ray microscopic structure of both normal and pathologic cell walls was studied by microradiography. In addition, mathematical calculations concerning the x-ray absorption of the normal and pathologic pneumatic cells were made to ascertain the possibility of interpreting the changes visible in the x-ray. Bone fragments were taken at operation from various parts of the mastoid process, in all 29 fragments, from 19 patients. The operations included 8 for otosclerosis, 10 for acute mastoiditis (1 bilateral) and 1 for chronic otitis with cholesteatoma. Details of the technic of examination are described.

The results of the examination were correlated with the x-ray and operative findings in normal mastoids and various inflammatory conditions in the cell system of the mastoid. It was noted that when the thickness of the cell wall exceeds 0.3 mm., and the roentgenographic contrast is decreased, the bone is most probably involved by the cellular pathologic process. When the cell wall is less than 0.3 mm. thick, a diminished contrast does not necessarily imply such involvement. The effect can then be explained by edema of the mucous membrane or the presence of exudate in the cells. In cases in which a decreased density of the cell walls is demonstrable roentgenologically, this corresponds to an actual decrease of calcium content in the bony tissue, unless as stated, the thickness of the cell walls is less than 0.3 mm. 23 references. 2 tables. 22 figures.

Primary Reduction of a Large Operation Cavity in Radical Mastoidectomy with a Muscle-Periosteal Flap. *Y. Meurman and L. Ojala, University of Helsinki, Helsinki, Finland. Acta. oto-laryng. 37: 245-52, June 1949.*

The principal purpose of the muscle-periosteal flap procedure is to fill the deep lower recess produced in some cases of radical mastoidectomy and to improve hygienic conditions in the operative cavity, thus gaining optimal observation. The procedure may be used in both retro-auricular and endaural radical mastoidectomy. However, this method is contraindicated when the operation cavity must be left open for treatment or when extensive subperiosteal or subcutaneous abscesses with a purulent infiltration of the attachment of the sternocleidomastoid muscle are present. The technic is described in detail.

Of the present series of 36 radical mastoid cases or attico-antrotomy cases, the operation was retroauricular in 33 cases and endaural in 3. A simultaneous primary skin graft according to Tiersch was done in all of the latter and in 5 cases of the former. Complete follow-up was possible in only 11 cases and in these the final examination showed a well-shaped dry cavity with a smooth posterior recess. The remaining 25 cases when last examined all had a well-shaped operation cavity and most showed a dry cavity almost entirely covered with epidermis. During detachment of the muscle flap the emissarium mastoideum may be injured. This occurred once in this series. There was infection and abscess in the soft retroauricular tissues in 2 cases and erysipelas developed in 1 case. The incidence for inflammatory post-operative complications was 8.3%; the corresponding incidence for simple radical mastoidectomy without the use of muscle flap being 10.7%. 30 references. 2 tables. 3 figures.

Mastoid Infections. *S. C. Hsiao and J. T. Wang, Nanking, China.* Chinese M. J. 66: 660-64, Dec. 1948.

Of 788 ear, nose and throat cases treated at the Central Hospital of Nanking from January 1946 to December 1947, 39 cases, or 4.9%, were cases of mastoid infection, acute in 5 cases and chronic in 34 cases. Most of the cases were treated surgically, with supplementary sulfonamides or penicillin, or both. Tympanomastoidectomy was the operation most frequently used, although in a few cases simple mastoidectomy or incision and curettage sufficed. In the majority of the patients the ears stopped draining one month after the operation, but in a few cases there was continued draining 5 months after operation. There were 2 cases with intracranial complications, of which 1 was fatal. The mortality rate was thus 2.5%. Pre-operative findings, roentgenologic and pathologic findings and data on 3 cases of tuberculous mastoiditis are presented in tabular form. Preoperative preauricular fistula is rare, but postauricular fistula appeared in 14 cases. Subperiosteal abscess was present in 8 cases, facial paralysis in 4 cases. The ear drums were completely destroyed in 16 cases, and showed marginal perforations in 13 cases. Cholesteatoma was present in 8 cases, and if those cases were included in which there was an enlarged antrum or aditus ad antrum with caseous matter, the number would be brought up to 15, or 38.48% of the whole series. Surgery and supportive therapy is usually recommended for cases of tuberculous mastoiditis but were not successful in the three cases here reported.

Of the cases with intracranial complications, one was diagnosed as lateral sinus thrombosis and responded to chemotherapy and incision and drainage of the cervical abscess. The other patient was suffering from chronic mastoiditis and cholesteatoma complicated by meningitis and cerebellar abscess. This patient died after discharge. 5 references. 3 tables.

A Case of Air Embolism after Operation on the Ear. *Sten Handstedt, Hålsingborg Infirmary, Hålsingborg, Sweden. Acta oto-laryng. 37: 57-64, Feb. 1949.*

Air embolism in otosurgery seems to be a rare occurrence. Hoffheinz and Fleischmann describe 12 cases, which occurred during change of dressing on operated ears. Most cases of air embolism, resulting from injury to the sigmoid sinus, occur in patients who are in a sitting position with the head elevated.

The author describes a case of dangerous air embolism in a 38 year old woman. The sinus was injured in a mastoidectomy and the bleeding staunched by a tampon. On the eleventh day after the operation the sinus tampon was taken away—unwisely, while the patient was sitting. Immediately, a gurgling noise was heard and the patient fainted after a deep inhalation. She quickly recovered after stimulation, but complained of a stitch in the back. This feeling persisted for some days.

The lungs were x-rayed after two hours and two pictures made which showed an interesting change:

On the *right* side there lies an extended parenchyma change most pronounced in the upper lobe, characterized by diffusely bounded streaks from hilus out towards the periphery and increased vein pattern and a pleural change in the form of a 2 mm. wide pleura layer parietal and an increased width of interlobar fiber between upper and middle lobe. On the *left* side there is a barely cm. wide pneumothorax parietal and a rather pronounced vessel pattern suggesting vein stasis. Three days later these changes were nearly gone. The size of the heart in this x-ray is appreciably smaller than that in the earlier one and the decrease corresponds to the *right part of the heart*.

The subsequent course was without complication and the patient was sent home with good hearing and is still in good health.

The change in the lungs seems to be in conformity with what is shown by the experiments of Frey ("Die Luftembolie." *Ergebn. d. Chir. u Orthop.* 22: 95, 1920). The absorbed air collected in the right half of the heart and dilated it and an atelectasis occurred in the lung field owing to the vessels being filled with the air. This fact and the visible pneumothorax will explain the patient's feeling of a stitch in the chest.

The horizontal position after the absorption probably saved the patient's life. Thus, the importance of keeping the patient in a horizontal position while performing manipulations with sinus cannot be stressed too much. 27 references. 2 figures.—*Author's abstract.*

5. Middle Ear

Eukodal as a Diagnostic Means in Oto-Neurology. *J. Miodonski, Jagellonian University Krakow, Cracow, Poland. Acta oto-laryng. 37: 116-23, April 1949.*

Since a vertical-inferior nystagmus appeared 20 minutes after a subcutaneous injection of 0.02 g. of eucodal, a preparation containing eucodal,

called scophedal, was expected to produce the same result. Vertical-inferior nystagmus did appear following an injection of scophedal. In the light of this, scophedal is suggested for use in diagnosing conditions involving the vestibular system. Two selected cases with lesions in the midbrain and medulla serve to demonstrate the feasibility of this suggestion.

The diagnostic value of scophedal is summed up as follows: (1) a typical nystagmus from one or both labyrinths may normally be induced by turning or calorization while a vertical inferior nystagmus is induced by scophedal; (2) if turning, calorization or rotatory stimuli fail to elicit vertical nystagmus, scophedal will; (3) scophedal or eucodal may be introduced as a central stimulus of the vestibular system; (4) the region of the oral parts of the nucleus of Deiters should according to pathological data, be regarded as the point of attack of this central stimulus; and (5) a useful guide to the individual dosage of scophedal in surgery should be the central nystagmus appearing following injections of scophedal. The use of scophedal has shown that streptomycin impairs the function of the peripheral parts of the vestibular system (sensory endings, Scarpa's ganglion). 3 figures (charts).

Otitis Media Following Electrocoagulation of the Gasserian Ganglion after the Method of Kirschner. *Steen Johnsen, Copenhagen, Denmark. Acta oto-laryng. 37: 45-49, Feb. 1949.*

Otologic complications may arise from a retroganglionic severance of the nerve, as well as from electrocoagulation. In 74 cases treated for malignant neuralgia of the trigeminal nerve by electrocoagulation, 10% contracted a homolateral suppurative otitis media, and one-third complained of tinnitus. Auditory impairment was found in all the patients, only 2 regaining normal hearing. This may be attributable to paralysis of the motor root of the trigeminal nerve, since all the patients suffered paresis of the muscles of mastication postoperatively. Jerlang and Dederig (1938) presumed that symptoms of reduced hearing of the sound conduction type, subjective ear symptoms, and some vestibular disturbances were caused by a labyrinthine edema of vascular nature following severance of the sympathetic fibers. As the motor root of the trigeminal nerve innervates the tensor veli palatini muscles, interruption of its function results in neurogenous occlusion of the eustachian tube, and ascending infection of the middle ear can follow. This is in part theory, since the motor conditions of the tube have not been clarified and there is not unanimous agreement as to the muscles that act on the tube. From the symptoms in the cases studied, however, it seems reasonable to believe that they are due to an influence on the motor part of the trigeminal nerve. 9 references. 7 case reports.

Penicillin Treatment of Simple Acute Otitis Media. *Niels Risker, Sundby Hospital, Copenhagen, Denmark. Acta oto-laryng. 37: 230-38, June 1949.*

Of 260 otitis patients with 372 affected ears, 133 received penicillin therapy while the remaining 127 were given only routine treatment (i.e., irrigation with spirits). None of the patients receiving penicillin required

mastoidectomy, while 20 in the control series were obliged to undergo the operation. In the control group the suppurative stage lasted an average of 13.2 days; in the penicillin group, 7.1 days. When the otitis was caused by Pfeiffer's bacillus, there was no response to penicillin treatment. Thus far the results suggest that penicillin therapy increases the chance of recurrence and new infections. In all hospitalized cases of acute otitis, except when the causative agent is Pfeiffer's bacillus, penicillin therapy should be attempted. However, in general practice, penicillin treatment should be reserved for those cases in which the otitis runs a complicated course and for cases of bilateral otitis. 13 references. 11 tables.

On the Nature of a Dual Function in the Cochlear Nerve. (With Reference to Features of a Middle-Ear Deafness in Cases of Cochlear Lesions.) *F. Kobrak, London, England. J. Laryng. & Otol. 63: 395-410, July 1949.*

According to Saxén there are two forms of cochlear lesions, epithelial and subepithelial. Two types of response are elicited in electrophysiologic experiments, the first following the "All-or-None" law as action potentials and the second following conditions proportional to the magnitude of stimulus as distortion potentials. In addition, the author's analysis of elementary musical hearing suggests a dual cochlear nervous function which may be explained by a "cochleo-vestibular principle" (based on the phylogenetic origin of the cochlea from the sacculus) and a "cochlearis proper principle." The cochlear lesion of the epithelial form is in some ways characterized by features of middle-ear infection, here ascribed more to a secondary indirect causation by reflex spastic activities due to degenerative cochlear hyperexcitability than to a primary direct causation by the cochlear lesion itself. In the light of this dual character of cochlear nervous functions and lesions, examination must be based not only on the threshold value of the individual tone for the diagnosis of lesions of the subepithelial part, but on the interrelated values of "proportional hearing" of tones for the diagnosis of lesions of the epithelial portion of the cochlear nervous system. 17 references.

A Case of Persistent Otorrhoea Due to Chronic Infection in a Large Infra Tympanic Cavity. *P. R. B. Grimaldi, S. R. Mawson and G. H. Bateman, London, England. J. Laryng. & Otol. 63: 350-51, June 1949.*

The patient, a 30 year old woman, complained of a persistent left otorrhea of long standing which had increased and become associated with attacks of vertigo and occasional pain. The symptoms had begun 7 years earlier, after a left radical mastoidectomy had been performed, followed a few days later by an operation for lateral sinus thrombosis. Present examination showed the discharge from the left ear to be originating from the floor of the tympanic cavity (attic and posterior part of the radical cavity comparatively dry). Severe giddiness followed probing and cleansing of the infected area.

When conservative treatment failed after a fair trial, the mastoid was reopened by the endaural route. Below the floor of the middle ear was a large cavity, lined by a smooth, pink epithelium, surrounded by bone and filled with

cholesteatomatous material. There was no limiting membrane. This cavity was felt to be jugular bulb which had become continuous with the tympanum because of necrosis of the floor of the middle ear. After insufflation with penicillin-sulphathiazole powder, the cavity was packed with a 1/4 inch glove rubber drain. Some pain and giddiness continued until the sixth day when the drain was removed. The symptoms then rapidly disappeared. Three weeks later the cavity appeared dry and healthy and a permanently dry cavity is anticipated. 0 references.

A New Approach to Acute Otitis in Infancy. *Henryk Lewenfsz, University of Lodz, Poland.* Postgrad. M. J., London 24: 609-11, Nov. 1948.

There is an unusual frequency of suppurative changes found on autopsy in the middle ear of infants who have died with symptoms of a disease of the digestive or respiratory system. A disproportion between the results of clinical examination and postmortem pathological findings results from the absence of signs and the difficulty of diagnosis in otitis in infancy. The younger the patient the greater the difficulties. Laboratory methods are of little help, there is no characteristic blood picture and no typical temperature curve. Variable signs include: restlessness, intermittent sucking while feeding, rubbing of the ear, and tenderness over the tragus.

Where suppurative otitis media follows upper respiratory infections, diagnosis is easy, treatment is conservative, and prognosis is good. Latent otitis, however, most frequently accompanies gastrointestinal and pulmonary infections. This second type has an obscure relationship with "summer diarrhea." Death rate in summer diarrhea has been very high, and autopsy shows bilateral suppurative changes in the tympanic cavity and mastoid. The condition is diagnosed clinically in only 20-40% of the enterotoxicoeses, and doubtful cases should have a myringotomy. This, however, does not always produce a purulent discharge. In adults, diagnosis may be based mainly on changes in the drum, but this method is often useless in early infancy.

In children with an intact drum, there is a localized patch of intense red on the superior or posterosuperior meatal wall, often accompanied by bulging. These signs are marked in unilateral disease and occur in cases with perforated drums. The reddening and bulging is a sign of infection with the presence of exudate in the mastoid antrum. The bulging in infants contrasted with the prolapse of the posterosuperior meatal wall in adults is not an indication for an antrotomy.

These two signs with diagnostic puncture of the tympanic cavity and/or the mastoid antrum give a correct diagnosis and permit suitable treatment in every case. Puncture of the mastoid antrum is both a diagnostic and therapeutic procedure. In 300 babies whose mastoid antrum was punctured and aspirated, the clinical picture changed within a few hours. Vomiting subsided, motions decreased, toxemic symptoms disappeared, and the child gained weight. Frequently there was deterioration in one to three days, and the antral puncture was repeated daily or every second to third day. In many cases an antromeatal fistula formed. The death rate fell to 30%, then to 20%.

RHINOLOGY

1. General

Evidence on the Genesis of Certain Common Nasal Disorders. *Thomas H. Holmes, Helen Goodell, A.B., Stewart Wolf, and Harold G. Wolff, New York Hospital and Cornell University Medical College, New York, N. Y. Am. J. M. Sc. 218: 16-27, July, 1949.*

A careful investigation of the nasal structure was made in 112 subjects from 13 to 60 years of age, one to seven times a week for 1 to 8 months, including in all 4,000 observations, in order to determine the relation of changes in the nose accompanying emotional distress to tissue damage and nasal disease. It was also desired to examine the underlying neural mechanism for the production of such nasal hyperfunction. The latter was characterized by hyperemia of the nasal mucosa, turgescence of the erectile tissues in the turbinates, hypersecretion and obstruction to breathing.

It seemed that life situations producing conflict, and arousing feelings of anxiety, hostility, guilt, frustration and resentment, were commonly accompanied by these symptoms of nasal hyperfunction. The observers also noted an associated pyogenic-like reaction with an increase of neutrophils and eosinophils in the nasal secretion. Biopsy at such a time revealed edema of the stroma, dilated vascular and lymphatic channels, and hypersecretion of the mucous glands. It is concluded that the nasal hyperfunction is produced by cholinergic impulses to the nasal mucous membranes, probably transmitted by the greater superficial petrosal nerve. The production of symptoms seems to represent an attempt on the part of the organism to protect itself by shutting out, neutralizing, and washing away in the nose (which symbolizes the noxious environment). Nasal pain, of either a burning type in the nares or a dull pain under the bridge of the nose or over the zygoma, above the eye, in the temple, upper teeth and ear, was not necessarily produced by infection. Frequently, the persistence of such a psychic pattern produces prolonged pathologic changes, which, coupled with other noxious threats and accompanied by a continued unsatisfactory personal adjustment, become important to the pathogenesis of chronic nasal disease. 37 references. 7 figures.

Studies of the Effect of Lime and Cement Dust on the Upper Respiratory Tract and the Sense of Smell. *Otto H. Meurman, Oto-Laryngological Clinic of the University, Helsinki, Finland. Acta oto-laryng. Suppl. 73, 111 pp., 1948.*

The author studied the effect of lime and cement dust on the upper respiratory tract and the sense of smell on the basis of sickness records, past histories, mass examinations of workers, and experiments on animals.

The sickness records, assembled from nine successive years, show that the annual incidence of diseases of the upper respiratory tract causing absences from work, i.e., sickness days, is 0.5-2.2 cases per 100 members

of the Sickness Fund. Since 1941 this incidence has continually been below 1. Lime and cement dust evidently plays no decisive role in the origin of these diseases. The total morbidity, best reflected by the number of workers applying for medical attention, indicates that the frequency of diseases of the upper respiratory tract varied in the period 1937-1945 from 10.1 to 2.1% of all disabilities. With every decrease or increase in the amount of limestone quarried in the different years, the diseases of the upper respiratory passages decreased or increased independently of simultaneous variations in the incidence of all respiratory diseases or the total morbidity. The number of complaints concerning the upper respiratory tract varied with the seasons. There was a peak, 5.5 per 1000 members of the Sickness Fund, in March, May and December, and a minimum, 3.5 in June. In July, August and September the incidence of these diseases rose slightly, obviously due to the particularly large amount of lime and cement dust.

Past histories were obtained from a total of 529 workers; of these 207 were employed in the mine and crusher house, 198 in the cement plant, and 124 in the lime works. The workers complained of two kinds of symptoms: initial or transient, and chronic. The most common initial symptoms were, besides sneezing: mucous secretion, epistaxis and hoarseness. Epistaxis was the complaint of 0.5% of the mine and crusher house workers, 8.6% of the cement workers, and 39.5% of the lime workers. The incidence of the other symptoms differed only slightly in the specified parts of the factory. The chronic manifestations, secretion, throat trouble, cough, and impairment of the sense of smell, were about equally common in the different working places. Impairment of the sense of smell was the complaint of 9.7% of the mine and crusher house workers, 10.4% of the cement workers, and 12.9% of the lime workers. Among the 178 workers who were not exposed to the influence of lime and cement dust in their work, such complaints were far less frequent.

Mass examination was made on 396 workers, 154 from the mine and crusher house, 141 from the cement plant, and 101 from the lime works. The methods of examination included, besides the ordinary rhinolaryngological examinations—anterior and posterior rhinoscopy, pharyngoscopy and indirect laryngoscopy—measurement of the breadth of the meatus communis with Y. Meurman's probes, testing of the olfactotry sense with Proetz' olfactometer, and laryngoscopy in Killian's position, as well as anthropological measurements of the head, face and nose.

Of all examined workers 208, or 52.5%, had deposits of dust on the nasal mucosa at certain points i.e., the anterior part of the septum, the front edge and the medial surface of the anterior part of the inferior turbinates, and the front edge of the middle turbinates; in the latter location a crust-like deposit of dust often formed. Of the mucosal lesions observed in 54.0% of all examined workers, slight changes were the most frequent. Among the lime workers these slight alterations (injection and slight swelling and slight atrophy) occurred in 46.5%, among the cement workers in 37.6%, and among the mine and crusher house workers in 37.7%. Marked mucosal

changes, reddening, swelling and mucus secretion, or atrophy of the turbinates and mucous membranes, were far less common. In those working in the most dusty locations, mucosal alterations were definitely commoner than in those exposed to less dust. Mucosal ulceration was not noted. Two lime workers had a septal perforation, but only one of these could be accounted for by exposure to dust. Cases of sinusitis were extremely infrequent. Slight mucosal lesions in the pharynx appeared in 20.4% of all examined. Marked abnormalities were not noted. Dust in the pharynx was a much rarer occurrence than was dust in the nose. Mild alterations in the laryngeal mucosa occurred in about 5%. The trachea showed no changes.

The sense of smell was impaired in 175 cases, or 44.4%. In 132 of these cases the impairment was of essential character. Essential hyposmia and anosmia was to some extent dependent upon the duration of exposure. Among the cement workers there were fewer with impaired olfaction than among mine and crusher house workers and lime workers, the two latter groups differing but slightly in this respect. The lime workers showed the highest incidence of anosmia and greatest threshold values. Minimum perceptibles exceeding 5 olfacts, which were regarded as hyposmia, were most frequently noted when testing with the "fine" odors: cinnamon, eugenol, methyl salicylate and coumarin.

The importance of constitutional factors in the origin of the mucosal and olfactory changes was obvious. The number of examined included workers who, in spite of being employed for several decades in the most dusty locations, did not show any alterations in the mucous membranes or the sense of smell.

Twenty white rats, used as experimental animals, were exposed to dust for varying periods of time, the maximum being 3½ months. After this the animals were killed and serial sections prepared of their noses, including the olfactory bulb and the larynx. A typical feature was the collection of leucocyte-containing exudate in the meatus and directly overlying the epithelium. The respiratory epithelium was definitely folded and its goblet cells mucus-filled. In the olfactory epithelium swelling was observed in the sensory cells, or the epithelium was atrophic or destroyed throughout. The subepithelial tissue showed marked round cell infiltration. The nerve bundles were swollen in places and the nerve fibers partly clumped, partly entirely absent. The atrophy of the nerve fibers continued in the central direction as far as to the two outer layers of the olfactory bulb. Compared with the nasal changes, those in the larynx were insignificant.

To summarize the results of the investigation, it may be said that lime and cement dust are almost devoid of danger for the upper respiratory tract, at least under the present conditions of industrial hygiene. However, in workers whose exposure is of long duration and whose mucous membranes simultaneously possess weak resistance, the dusts may cause chronic mucosal changes, with attendant harmful symptoms, as well as marked impairment of the sense of smell. 118 references. 25 tables. 5 figures.—*Author's abstract.*

Bleeding Polyp of the Septum Nasi. *Richard Waldapfel, Grand Junction, Colo.* Eye, Ear, Nose & Throat Monthly 28: 19-22, Jan. 1949.

A case of bleeding septal polyp is described, which appeared under the clinical picture of a vascular growth rapidly recurring in spite of its repeated removal and destruction, and which could only be radically eliminated by resection of the part of the nasal septum in which it originated. The clinical symptoms made it resemble a malignant growth. Microscopically, it revealed innumerable cavernous blood-filled spaces separated by very thin septa of fibrous tissue, and in some places of granulation tissue. There were glands present, too, which is contrary to the opinion of some authors who believe that the bleeding septum polyp develops when the glands are destroyed.

The growth originated in the anterior part of the cartilaginous septum, in the same area which is the common site of habitual nasal hemorrhages, of rhinitis sicca anterior and of perforating ulcer of the septum. These facts point to a possible connection of the bleeding polyp of the nasal septum with these processes. 8 references. 3 figures.—*Author's abstract.*

A Roentgen and Clinical Study of Nasopharyngeal Malignancies (Lympho-Epithelioma and Transitional Cell Carcinoma). *George J. Baylin, Robert J. Reeves and Herbert D. Kerman, Durham, N. C.* South. M. J. 42: 467-76, June 1949.

Lympho-epithelioma and transitional cell carcinoma are usually silent tumors of the nasopharynx which may spread in one of several ways. The anatomic relationships are such that the tumor may grow through the basal foramina, block the eustachian tubes, enter the posterior orbit, block the nasal cavities, or enter the lymphatics and produce nodal enlargements in the neck regions. Thus the clinical picture may vary considerably and either neurologic, nasal, auditory, ocular, or lymphatic findings will predominate.

An analysis of 32 proved cases shows that the tumor occurred most frequently between the ages of 10 to 20 years and 50 to 60 years. The most common clinical complaint in this group was enlargement of nodes; the next most common was neurologic changes. Roentgen studies, particularly stereoscopic views of the skull base, are extremely helpful in analysing these cases. The triad of enlargement of the sphenoidal foramina, erosion of the basiocciput, and destruction of the petrous tip are almost pathognomic of a nasopharyngeal tumor. Another frequent finding of importance is the demonstration of a soft tissue mass in the nasopharynx. Ancillary x-ray changes are clouding of the nasal sinuses, erosion of the sphenoidal fissure and optic foramen, and destruction of the vomer; but these are not often present. The triad previously mentioned was present in 23 out of 32 cases. Even though the x-ray changes described represent extension of the primary lesion, this mode of examination remains valuable, for it must be remembered that most often it is the spread of the lesion rather than the primary focus that produces symptoms. Also, it is important to realize that the tumor and its metastases are often radiosensitive, and cautious x-ray therapy may be extremely beneficial. 8 references. 2 tables. 9 figures.—*Author's abstract.*

Streptomycin Treatment of Ozena. *Kinsey M. Simonton, Mayo Clinic, Rochester, Minn. Proc. Staff Meet. Mayo Clinic. 24: 337-40, June 8, 1949.*

The cause of ozena is unknown, but in advanced cases the organism *Klebsiella* is regularly found, and is presumed to be a secondary invader. Traditional methods of treatment, including cleansing of the nasal channels, immunologic therapy with vaccines, and surgical treatment have not proved successful. Reports of successful inhibition of *Klebsiella* growth by the use of streptomycin prompted the author to test the treatment on 8 patients.

TABLE I
Summary of Treatment in Eight Cases

Age, yr.	Streptomycin, daily intra-muscular dose, units*	Culture before and after treatment		Immediate result	Last Report
		Before	After		
24	1,000,000 for 8 days	<i>Klebsiella</i> , diphtheroids	No <i>Klebsiella</i> after 2 days	No crusts, slight mucus	40 mo. after treatment. Bad drainage with colds, little other trouble.
36	800,000 for 5 days	<i>Klebsiella</i> , diphtheroids, micrococci	No <i>Klebsiella</i> after 5 days	No pus or crusts at time of dismissal	8 mo. after treatment. Irrigates daily; crusts easier to remove; 75% improved
46	1,000,000 for 9 days	<i>Klebsiella</i> , <i>Pseudomonas aeruginosa</i>	Never negative for <i>Klebsiella</i> ; became resistant to streptomycin	75% subjective improvement on treatment	42 mo. after treatment. Little trouble since treatment; continued improvement
26	1,200,000 for 12 days	<i>Klebsiella</i> , micrococci, diphtheroids, streptococci (green prod.)	No <i>Klebsiella</i> after 4 days	Crusts recurred	6 days later (dismissal date)
53	1,600,000 for 8 days	<i>Klebsiella</i> , streptococci (hemolytic)	No <i>Klebsiella</i> after 2 days	Less drainage while on treatment	1 mo. after treatment, increased drainage. 2 yr. later. Less drainage, slowly improving
49	2,000,000 for 14 days†	<i>Klebsiella</i> from pus and antral mucosa	No <i>Klebsiella</i> after 3 days	No pus from antrum after operation, slight crusts	9 mo. after treatment. No drainage or crusts
30	2,000,000 for 11 days	<i>Klebsiella</i> . Sensitive to less than 2.5 microgram per cc.	No <i>Klebsiella</i> after 4 days	No crusts, little secretion	3 mo. after treatment. Slight crusts. 26 mo. after treatment. 100% relief
29	2,000,000 for 7 days	<i>Klebsiella</i> . Sensitive to less than 1.56 microgram per cc.	Never negative for <i>Klebsiella</i> ; organism resistant to 250 microgram per cc.	Less drainage, thin crusts	26 mo. after treatment. Recurring exacerbation of pus and crusts

* 1 unit = 1 microgram

† After antrum window

Limited follow-up after 8 to 42 months reveals subjective improvement in 5 patients and doubtful or no improvement in 3. In 2 cases, the *Klebsiella* became resistant to the action of streptomycin; in the third case, the dose of 1 million units per day may have been inadequate (this patient, however, later reported symptomatic improvement). The author feels that the group of 8 cases is too small to draw definite conclusions concerning the value of streptomycin therapy of atrophic rhinitis associated with ozena. One cannot expect the atrophic nasal mucosa to return to a normal state. Further studies are needed to determine the effect of antibiotic therapy in early stages of ozena, prior to the atrophy of the mucosa. 3 references. 1 table.

Epistaxis. *J. H. Ogura and B. H. Senturia, Washington University Medical School, St. Louis, Mo.* Laryngoscope 59: 743-63, July 1949.

The authors discuss the anatomic, histologic and etiologic factors in epistaxis. Case histories of adults and children entering Barnes and Children's Hospitals are reviewed. It is pointed out that all cases of epistaxis occurring in children bleed from Little's area, and that 50% are associated with a rheumatic diathesis. In adults, on the other hand, with increasing age bleeding occurs from the posterior area, frequently from under the inferior turbinate. A summary of the treatment given in these cases is given. It is pointed out that submucous elevation for anterior septum bleeders often worked very well; ligation of the external carotid artery was often a life saving procedure. 3 tables. 3 figures.—*Author's abstract.*

Adenoiditis in Infants (*L'adénoïdite du nourrisson*). *Baron, Nantes, France.* Rev. de laryng. 69: 406, Sept.-Oct. 1948.

It has been found that the adenoids may be enlarged and infected in infants as well as in older children. Such adenoiditis is a frequent cause of otitis in infants; it also may cause gastrointestinal symptoms, with vomiting and diarrhea, and an accompanying toxemia. In some cases with this type of toxemia, there is evidence of otitis, which has led some pediatricians to believe that the syndrome is of otitic origin. However, antrotomy in these cases has not given the results that would be expected if the infection was of otitic origin, and the mortality has been high. In the author's experience in 1945, there were 12 deaths in 14 antrotomies in cases of this type in infants; there were only 2 deaths in 37 cases in which adenoidectomy was done, in 9 of which a subsequent antrotomy was necessary; in 1946, there were no deaths in 36 cases in which adenoidectomy was done; and in 1947 there was 1 death in 40 cases of adenoidectomy, in 9 of which subsequent antrotomy was done.

In cases of otitis in infants, if the aural discharge persists more than fifteen days after paracentesis or if there is a recurrence of the otitis, an adenoidectomy is indicated. If the otitis does not subside completely, or there is another recurrence after adenoidectomy, antrotomy is indicated. In cases of severe infection, with gastrointestinal symptoms and toxemia, adenoidectomy

is indicated; even though the infant's condition is poor, the author has found that adenoidectomy results in rapid recovery, improvement often being evident within a few hours. Vomiting and diarrhea cease, the temperature falls to normal within twenty-four hours, and the infant takes food eagerly. This results in rapid gain in weight and improvement in the general condition. If pulmonary complications are present, however, adenoidectomy is not done until the pulmonary infection is entirely cleared.

The Recurrence Rate of Adenoids. *Nils Lundgren, Ear, Nose and Throat Clinic, Lund, Sweden.* Acta oto-laryng. 37: 50-56, Feb. 1949.

Various treatments of the enlarged adenoid tissue are discussed. It is pointed out that removing adenoids blindly frequently results in so-called recurrences. A few minor recurrences may occur, but in most cases, the so-called recurrences are thought by the author to be the residue of adenoid tissue left by previous adenoidectomy. When adenoidectomy is performed under general anesthesia with the patient in a recumbent position, and with indirect and (so far as possible) direct inspection of the field of operation there is the highest probability that all visible adenoid tissue is removed.

With these methods in use for more than 20 years, only a few recurrences of adenoid tissue were found in follow up studies at the Ear, Nose and Throat Clinic at Lund, as confirmed by examination of 1,426 elementary school children (90% of total child population). Of these, 446 (31%) had undergone adenoidectomy; recurrences were later found in only 4% of the 446. 25 references. 3 figures.—*Author's abstract.*

Respiratory Allergy Due To Fungi. *Charles H. A. Walton, Winnipeg Clinic, Winnipeg, Man., Canada.* Canad. M. A. J. 60: 272-75, March 1949.

Fungous spore sensitivity has been recognized since 1925 and seasonal spore sensitivity since 1935. Cases of seasonal allergic manifestations occurring in periods not adequately explained by pollinosis were noted in Manitoba as elsewhere. Walton and Dudley demonstrated that the spores of the saprophytic fungi *alternaria*, *hormodendrum* and *helminthosporium* occurred seasonally in Manitoba, starting to appear early in April and disappearing with the first permanent snow in November. In addition the parasitic fungi known as rust and smut produced large amounts of spores in July or August. Such spores as those of *aspergillus*, *penicillium*, *monilia*, *rhizopus*, *mucor* and yeast cells occurred throughout the year and had little seasonal variation. Patients sensitive to one or other of these three groups of air-borne spores manifest their symptoms in the season of their prevalence.

Two-hundred and seventy-five successive cases of asthma seen in an 18 month period are reviewed. Many had associated rhinitis. Of these 275 cases, 99 (36%) showed skin sensitivity to various spores and reactions varied from slight to very severe. Of these 99 cases, 88 showed clinical evidence of sensitivity. These cases were not, of course, exclusively mold sensitive. Forty-five were essentially seasonal and the remaining 43 cases had symptoms throughout the year but with seasonal exacerbations. The age of the patients varied from infancy to 70. Males totaled 53 and females 36. Three-fifths were urban residents and the others rural.

Fifty-nine cases showed skin and clinical sensitivity to the seasonal saprophytes, 46 to the non-seasonal fungi and only 17 to the parasitic rusts and smuts. Symptoms were often severe and reactions to hyposensitization were often as marked as with pollen. While only 17 cases of rust and smut sensitivity were identified, their clinical course seemed to point definitely to an etiologic relationship. Rust and smut sensitivity has often been doubted, since Cadham's original report in 1924, on the grounds that his samples of rust were probably mixed with alternaria, etc. Our extracts were made from carefully collected samples of single species produced at the Dominion Rust Research Laboratory in Winnipeg and were not contaminated by other spores. Rust and smut sensitivity seems to be a definite clinical entity although not common, i.e., 19.2% of our spore cases and 6.2% of the total series.

Clinical sensitivity to non-seasonal saprophytic fungous spores was more difficult to demonstrate, but the evidence seemed strong enough to assume clinical importance in about half of the fungus cases. It is suggested that saprophytic spores are likely to be allergenic, that spores parasitic to plants are less frequently allergenic and that spores parasitic to man are rarely if ever allergenic. 4 references. 4 tables. 6 figures.—Author's abstract.

Treatment of Hay Fever by Injection of the Nasal Mucosa with Alcohol. *Bedford Russell, St. Bartholomew's Hospital, London. Lancet* 256: 1098-99. June 25, 1949.

Injection of the nasal mucosa with alcohol was tried as a treatment for hay fever in 100 patients ranging from 7 to 50 years of age. After spraying the nasal passages with neosynepirin, 0.25%, or some other vasoconstrictor, gentle contact of the mucosa with a probe will cause unbearable tickling in certain spots with watering of the eyes. Such sensitive areas are usually found on the septum, about 1 inch up and back from the mucocutaneous junction, or at the anterior third of the inferior turbinal, 1/4 inch above its lower margin and occasionally extending forward to the edge of the nares. Less frequently, such areas are found on the dorsum of the soft palate, on the floor of the nasal passage, 1/2 inch from the nasal orifice or on the septal mucosa.

One week before an expected attack, having excluded dental and sinus infection, the nasal passage is sprayed with a solution of cocaine and adrenaline and ribbon gauze saturated with this solution is packed gently against the patches for about 15 minutes. The needle is then introduced into, but not through the mucosa at the posterior-inferior border of the trigger area, and a tiny drop of 70% alcohol is introduced by slow firm pressure. The resulting blanching and pain subside quickly. The next drop is introduced 1/4 inch forward and upward from the first, until the delineated spot has been covered. Injections on the septum are fairly simple, but on the inferior turbinate it is very easy to push the needle through the mucosa. Within an hour or two following injection, the nasal mucosa is swollen and obstruction is further increased by a plastic exudate. Four days later this plastic exudate

is removed and the other nostril is treated. After the pollen season has begun the injection may cause bleeding. At the height of the season it is better to paint the trigger area with chromic acid and the relief thus obtained may last for weeks.

Following the alcohol injection symptoms will remain insignificant for a season, after which a crescentic peripheral area of the sensitive spot will again become sensitive; but this is easily treated with a small added injection. Should the needle pass through the mucoperichondrium of the septum, a cartilaginous slough may result leaving scar tissue in the place of the mucosa, but this does not interfere with results. When the trigger area is high up on the septum, there may be danger of anosmia. No such case was observed in this series. Bleeding slight at first, may become worse when the vasoconstrictor effect has worn off, and be accompanied by an attack of sneezing.

Some areas may require from 5 to 6 injections to obliterate sensitivity. Similar sensitive spots have been noted on the palpebral conjunctiva. Potassium chloride, 5 gr. every 4 hours, may relieve the eye symptoms. In a very few cases, the reaction resembled hay fever and lasted for several days. In one case complete relief for 3 seasons followed treatment of one side only. In a single case disappearance of small ethmoidal polyps was noted 3 months after treatment. Trigger areas may be produced also by other inhalants such as dust and horse dander. These were successfully treated. In only one case was the entire nasal mucosa found to be sensitive and in this patient treatment was applied under general anesthesia. His condition has remained fair. 4 references.

Aspects of Perennial Allergic Rhinitis and Asthma in Childhood. *H. E. Edwards, Toronto, Ontario. Canad. M. A. J. 61: 36-38, July 1949.*

A series of 143 cases of non-seasonal allergic rhinitis and asthma observed in the Out-Patient Department of the Hospital for Sick Children during the past ten years is analyzed. Nearly all the asthma cases had allergic rhinitis and only 21.7% rhinitis alone. A family history of allergy was obtained in 42.7%. There were 95 males and 48 females. Associated allergies were found in 48 cases (33.6%), of which eczema occurred in 41. One half of the cases were from 5 to 10 years of age, with only one child under one year and only seven under two years of age. It is recommended that skin tests be done every two years. Many of the patients had multiple positive tests, the average being 6.45 positive tests per patient, and the highest number of positive tests in a single case being 23. In 7 patients there were no positive tests. It is emphasized that the size of the skin test is not significant, since an allergen giving only a slight skin reaction might have greater effect on some other shock tissue.

Among the food allergens, chocolate was the most frequent offender. Milk came fourteenth on the list and corn fourth. Inhalants included house dust, feathers, tobacco and animal hairs. In the homes of 60.7% of patients sensitive to house dust hot air heating was employed. Infections of the tonsils

and adenoids were found in 44 cases. There was no demonstrable relation between the severity of the allergy and the presence or absence of the tonsils. Tonsillectomy when indicated in these patients, should be done at a time when the patient is allergically quiescent.

In treatment, the author found the most useful drug to be aminophyllin, ephedrin and phenobarbital. Nausea and vomiting of a degree to require cessation of treatment occurred in only 3 cases. Antihistaminic drugs were found of value in the rhinitis cases and during the rhinitic stage of the asthmatic attack. If given early they may prevent an attack, but have less value when the attack is already advanced. In patients in whom the allergen could not be eliminated, desensitization was tried. Three cases of food asthma were successfully desensitized orally. In one case of sensitivity to wheat this method failed. In patients sensitive to several inhalants, a series of inoculations with a mixed antigen were given. Satisfactory results were obtained in 34 of 48 cases, with poor results in 14 cases. Of 74 cases treated with inoculations, satisfactory results were obtained in 71.6%. In 2 cases with bacterial allergy, autogenous vaccine failed to yield good results. The importance of psychotherapy, to reassure the patient, in combination with barbiturate sedatives is stressed. 9 references. 1 figure.

Clinical Allergy for the Nose and Throat Specialist. *Theodore L. Squier, Milwaukee, Wis.* Wisconsin M. J. 48: 598-600, July 1949.

Understanding of the criteria for adequate diagnosis and management is desirable for nose and throat specialists confronted with allergic patients. Skin-testing, injection of positive cases and the use of anti-histamine drugs are not the only technics required. The clinical history, for example, is of major importance, and skin tests should be made only after it is taken. Because of the nature of antibodies, which are probably formed during synthesis of globulin while in contact with antigen molecules, a spectrum of related antibodies is frequently formed, so that sensitivity of a lesser degree can be shown in substance related to the primary antigen. Thus, a patient may be sensitive to ragweed only, but give positive reactions to tests for cocklebur, marsh elder, daisy aster, etc.; treatment for the ragweed sensitivity causes all of the related skin reactions to disappear. Moreover, false positive reactions may occur from testing with syringes which remain contaminated, even though thoroughly washed and boiled. The clinical history should provide the necessary proof that the suspected antigen is producing the positive skin reaction.

The objective of allergic management, i.e., eliminating the explosive symptoms resulting from the antigen-antibody union, can be achieved either by reducing contact with the offending allergens to below the threshold of toleration, or by hyposensitization; or by both means. The threshold of clinical symptoms varies widely. In the initial injection of pollen some patients may tolerate 100 times the dose tolerated by others. The author feels that radical measures such as eliminating furniture, fur coats, rugs, etc., are unnecessary and cause too great an upheaval in the household.

The initial dose for hyposensitization should be well below the tolerance threshold, and the injection should be repeated to stimulate the development of so-called blocking antibodies. Persons with active immunologic response should respond well to hyposensitization. Persons of comparable clinical sensitivity but with sluggish antibody production respond poorly.

Antihistamine drugs must be considered as palliative remedies yielding temporary relief. Frequently they cause such severe drowsiness and gastrointestinal disturbances that they have to be discontinued. Asthma is rarely relieved by anti-histamine drugs alone, and in one patient asthma was observed to develop for the first time following the use of these drugs. It should be kept in mind that substances other than histamine are concerned in the production of allergy. Vascular changes cannot be modified by anti-histamine drugs. The latter should be used only as an adjunct, since progressively severe allergic conditions may develop if specific allergy control is neglected. 1 reference.

Bacterial Allergy in Relation to Asthma. *Thomas P. O'Connor, Northwestern University Medical School, Chicago, Ill. Arch. Otolaryng. 48: 145-49, Aug. 1948.*

A study of 100 patients with allergic respiratory symptoms was made; this series included 36 adults and 16 children with asthma and 48 children with allergic bronchitis or allergic rhinitis or both. In these cases there was clinical and bacteriological evidence of active or latent nasopharyngitis. A combined treatment was used: first, to clear up the infection in the pharynx by local therapy; and secondly, the use of a bacterial filtrate, as nose drops, to stimulate the body's protective mechanism. For local treatment of the pharyngeal infection, a swab moistened with benzalkonium chloride ("zephiran chloride") in aqueous solution is used to remove the mucous film from the nasopharynx; then a 3 to 10% solution of silver nitrate is applied; and finally a solution containing 50% acriflavine, 25% methyl violet 2B and 25% crystal violet in 1% concentration is applied with a swab. If results are not satisfactory after three or four treatments, a weak solution of iodine is substituted for the silver nitrate, and bacterial filtrate in a base of vanishing cream is applied in addition to the acriflavine mixture. After the nasopharyngitis is cleared up, the patient is given a bacterial filtrate with the instruction to use four drops in one nostril twice a week. This use of bacterial filtrate can usually be begun in children after the second treatment for the pharyngitis, but in adults not till after the sixth treatment.

The bacterial filtrates employed are stock filtrates, prepared from cultures of organisms obtained from the throats of patients with acute and chronic pharyngeal infections; such filtrates are prepared from each of the following organisms: *Streptococcus viridans*, hemolytic and non-hemolytic streptococci, *pneumococcus*, *staphylococcus*, *Neisseria catarrhalis* and *Hemophilus influenzae*. For use as nose drops, the stock filtrate is diluted 1:36,000 with sterile isotonic sodium sodium chloride solution. The filtrate used in each case depends upon cultures obtained from the patient's nasopharynx. If an asthmatic attack is precipitated by the use of the filtrate, the dilution is still further increased.

Of the 100 patients in this series, 22 had been under the care of allergists and had been given the usual desensitizing treatment without improvement. Of the 52 patients with asthma, 19, or 36.6%, have been entirely relieved of symptoms for periods of one to six years; 29, or 55.7%, have been free from symptoms for the most part but have an occasional recurrence after an acute infection of the respiratory tract; the results, therefore, may be considered good or fair in 92.3% of the cases of asthma. Of the 48 allergic children, only 32 have been followed up; of these, 14, or 47%, have been entirely relieved of allergic symptoms; and 12, or 37.5% have no symptoms except occasionally after a respiratory infection; so that results are considered good or fair in 84.5% of these cases. Three illustrative cases are reported.

Foreign Body (Twig) in the Nose. *Moses I. Marks, Cleveland, Ohio.*
Ann. Otol., Rhino. & Laryng. 58: 289-92, March 1949.

In November 1947, a 46 year old white female complained of mild nasal symptoms, difficulty in breathing, and soreness of the nose of six months' duration. Examination showed obstruction of the left side of the nose with the objective appearance of a malignancy. Roentgenological study showed bone destruction supportive of a diagnosis of malignancy. The biopsy result showed inflammatory reaction. During the process of obtaining a specimen for a second biopsy a foreign body (twig) was removed. The twig was 4 in. long and 1/8 in. in thickness, and was covered with a calcium deposit. Upon further questioning it was determined that the foreign body had existed in the nose anywhere from eight to twelve years, and was most likely inserted during a period of involutional melancholia lasting from 1935 to 1939. The rapidity of recovery of the nasal structure to normal state in about seven days is worthy of note. In retrospect, a review of the x-ray films depicted the existence of this foreign body in the antero-posterior and lateral views. 4 references. 1 figure.—*Author's abstract.*

Recent Progress in Nasal Physiology. *Arthur W. Proetz, Saint Louis,*
Mo. Proc. Roy. Soc. Med. 41: 793-96, Nov. 1948.

In earlier times the "vestigial" character of the nasal structures was emphasized. However, the unsatisfactory results of radical exenteration forced us to examine their nature and functioning more closely. Today, these tissues and functions are conserved whenever possible. Particularly important is the preservation of the action of the cilia in the nose and accessory sinuses. They are powerful in their effect and behave in an orderly manner. Wherever disease or surgery results in areas of non-ciliated epithelium there is a stasis of the mucus, and infection becomes inevitable. Acting in concert with the ciliary action of drainage is the mucus blanket. Whenever obstruction or deviation of the air stream occurs, there is apt to be mucus stasis and drying and consequent nasal infection. Breathing through the mouth also moistens the air favorably for the lungs, but the mouth dries, and the normal nasal mucosa does not.

The nose is also a filter and like all filters must be cleaned regularly. All infectious ailments of the nose are eventually related to the failure of the filter to cleanse itself. Entering a sinus surgically by enlarging its ostium results in a denuded strip and interferes with drainage by destroying the function of the ciliary cleansing action towards the normal ostium. Drainage, artificially maintained by displacement, is preferable to instrumentation of any kind. If sticky mucus is left on the surface its presence is an irritation. To protect the moistness of the mucus the author uses as a nasal spray 4% alcohol and 4% glycerin in normal saline. The action of this solution is the opposite of that of ephedrine.

The presence of lysozyme in the nasal secretions is still discussed. Cahn-Bronner reports that lysozyme disappears on the first or second day of a cold, and that there is none to be found in a "running nose." Secretions from hayfever patients show a high lysozyme content.

Deficiency of the thyroid hormone may result in recognizable alterations in the nasal mucosa. These changes are exfoliative or are similar to the pale, boggy manifestations of the allergic nose. The tendency of these patients to nasal infection can be corrected by the administration of thyroid extract. Even allergic patients are less prone to nasal symptoms under adequate thyroid medication. 26 references.

The Nasal Mucous Membrane in Relation to the Lymph Stream and Cerebrospinal Fluid. *J. M. Yoffey*. Proc. Roy. Soc. Med. 41: 798-800, Nov. 1948.

By instillation of a vital dye it has been shown that the substance passes through the intact mucous membrane, enters the submucous lymphatics and passes through the lymph node, or nodes, and the cervical duct to reach the blood stream. When the duct is opened it is seen that, only a few minutes after instillation of the dye into the nostrils, the lymph from the duct begins to appear colored in gradually increasing intensity.

Not only dyes, but also proteins, such as egg albumin (molecular weight about 34,000), and even serum albumen (mol. wt. 70,000), will readily pass the nasal mucosa into the lymph stream. Bacterial antibodies are usually globulins (mol. wt. 180,000) and are too large to traverse the mucosa in this manner; however, toxins are a good deal smaller and, of course, toxin (e.g., diphtheria) has been introduced into the nose to procure immunity. Particulate matter, such as India ink, does not pass the mucosa nor do viruses while the membrane is normal; however, after the viruses have gained entry into the lymph stream leading from the nasal cavity, the cervical lymph nodes do not hold them up. The vaccinia virus has been shown to enter the lymphocytes in the node and thus gain entry to the general blood stream.

Not only does the lymph stream from the nose arise from the capillary filtrate of the submucous blood-vessels, but some of the transported fluid seems to be cerebrospinal fluid which leaves the skull through the cribriform plate in the lymph channel in and surrounding the emerging bundles of the olfactory nerve. While this route does not pass particular matter of any size,

the author and his collaborators have recently demonstrated the passage of particles of India ink (0.5 to 105 micra) around and in the substance of the olfactory nerve bundles which terminate in the olfactory mucous membrane. Here the sub-epineural spaces, containing the ink, ended in the immediate vicinity of the submucous lymph vessels. If bacteria and viruses behave as do ink particles, no infection of the nose would be likely to reach the brain, against the cerebrospinal fluid current, but bacteria or viruses in the cerebrospinal fluid would readily reach the nasal mucous membrane, and from thence the cervical lymph pathways. 3 references.

Rhinologic Use of Oxidized Cellulose Gauze. *Ernest J. Elsbach, New York Polyclinic Medical School and Hospital, New York, N. Y. N. Y. State J. Med.* 49: 663, Mar. 15, 1949.

When the entire interior of the nose was packed with oxidized cellulose gauze in case of nasal hemorrhage or after plastic or other endonasal surgery, it was found that the removal of its unabsorbed residue was rather difficult since it tended to separate into small pieces when disturbed by instrumentation or suction. Its removal by irrigation is undesirable after surgery. The patients frequently felt uncomfortable for some time as the gauze remained in place until absorbed. The author therefore advises that after endonasal surgery one cover only the incisions, or in case of hemorrhage, only the bleeding spots with one or two small layers of Hemo-Pack (1/2 in. wide gauze strips of oxidized cellulose gauze, manufactured by Johnson & Johnson) and keep these in place with petrolatum gauze, which latter may be packed as tightly as required to exert the necessary pressure and may be left in place as long as advisable. It is easily removed.

A warning is expressed against packing the entire nose with oxidized cellulose gauze, as recently the occurrence of damage to the nasal mucosa, even necrosis, was reported in such cases. The reason for this is not quite clear, but it might be due to a change in the intranasal pH or some purely local intolerance due to too large an amount of this gauze. We have not seen these incidents as a result of using small amounts of oxidized cellulose gauze as described above. Oxidized gauze should not be used after previous application of chemical agents to the nasal mucosa, as the agents probably enter into a chemical combination with cellulosic acid and hemoglobin, and thus hinder the absorption of the gauze. 10 references.—*Author's abstract.*

Handkerchiefs in the Transfer of Respiratory Infection. *K. R. Dumbell and J. E. Lovelock, Harvard Hospital, Salisbury, England. Lancet* 256: 777-80, May 7, 1949.

It has been demonstrated that a large number of hemolytic streptococci are to be found on the handkerchiefs of carriers, and that there occurs considerable dispersion of the bacteria-bearing particles during the natural manipulation of the dry used handkerchief. The nature of these particles protect the bacteria from aerial disinfection. The handkerchief is obviously a source of danger in the transference of respiratory disease. An attempt is

made to evaluate the disinfection treatment of handkerchiefs. Some of the textile disinfectants cause sensitization and are therefore not to be recommended. The present report deals with some of the newer disinfectants. Of the various types tested results seemed to be best with hexyl resorcinol, then octyl cresol and "alkyl" resorcinol. The rate of action of the hexyl resorcinol and octyl cresol was studied. Both were found virucidal for dermal vaccinia and influenza A-viruses both in vitro and on cotton fabric. Octyl cresol acts both as a dust layer and disinfectant. Hexyl resorcinol is expensive. Octyl cresol is cheap, but has an unpleasant odor and a selective disinfectant action. "Alkyl" resorcinol has no odor or objectional qualities but can be recommended only following further investigations. Handkerchief treatment as a preventive measure can only be expected to be successful for prevention of diseases spread by nasal secretions, and if used by nasal carriers of infectious organisms would reduce environmental contamination even if it did not diminish the incidence of infection. The degree of contact spread of respiratory infections is not known. 8 references. 4 tables.

2. Nasal Sinuses

Non-Diagnosed Maxillary Sinusitis. *Anton Buch, Centralsygehuset, Hjørring, Denmark. Acta oto-laryng. Suppl. 77, 17 pp., 1949.*

Routine x-ray examinations of 4,682 patients not suspected of having sinusitis revealed unilateral or bilateral maxillary sinusitis in 8% of the cases. A study of the patients, who were placed in 23 disease groups according to the classification of the Danish Board of Health, showed that maxillary sinusitis is relatively most frequent in diseases of the respiratory tract and in diseases of the ear, occurring in 20 and 13% respectively. In diseases of the kidney and urinary tract, the incidence was only 1%. In other diseases there was no significant deviation from the average incidence of 8%. Maxillary sinusitis was found to occur more frequently after 45 years of age.

In 25% of the cases of undiagnosed maxillary sinusitis there had been no symptoms. In 32%, the symptoms present might have been attributed to the disease that was previously diagnosed. In 41% there had been symptoms of sinusitis, but headache, one of the chief symptoms forcing the patient to seek medical advice, was conspicuously infrequent. Nasal discharge and congestion were common symptoms.

Among the undiagnosed cases of maxillary sinusitis, were included all types of chronic and acute cases, with a marked predominance of the former. It is estimated that about 10% of otherwise normal persons have sinusitis which has not been diagnosed. In 65% of patients showing blurring in the x-ray, secretion was found in one or both sinuses. Treatment of previously undiagnosed sinusitis by the Luc-Caldwell operation led to cure of existing polyarthritis in one case. Relapsing otitis may also respond to treatment of previously undiagnosed sinusitis. 28 references. 14 tables.

Some Points in the Pathology, Diagnosis and Treatment of Chronic Maxillary Sinusitis. *J. Chambers Ballantyne and A. R. Rowe, Bristol, England. J. Laryng. & Otol. 63: 337-41, June 1949.*

The following conclusions were drawn from a study of over 200 cases of chronic maxillary sinusitis: The most reliable adjunct to the clinical diagnosis of antrum infections was x-ray examination; transillumination is frequently misleading and should not be relied upon alone; the blood sedimentation rate is of no use in distinguishing between infected and uninfected cases; and the majority of cases showed pus cells in the middle meatus.

Surface therapy alone will seldom effect a permanent cure in cases of chronic infection in which irreversible changes have occurred in the deeper sub-mucosal layers of the antral membrane. However, a few cases which do not respond to simple lavage may be expected to respond to local chemotherapy. In only a very small number of the cases examined was the number of eosinophils sufficient to warrant a diagnosis of allergy. Perhaps with the establishment of a state of chronicity, the cytological picture changes from one of eosinophilic excess to one in which lymphocytes, plasma cells and polymorphonuclear cells predominate. The suggestion is made that antral infections become chronic when ventilation and drainage are permanently impaired and that in a small proportion of cases this impairment is effected by allergic stimuli. 0 references.

Local Treatment with Penicillin in Sinusitis. Determination of Penicillin Content in Maxillary Sinus Secretions 1-15 Days After Application of Penicillin. *Peter Berdal and Knut Urdal, University Hospital of Oslo, Oslo, Norway. Acta oto-laryng. 37: 161-71, April 1949.*

Thirty cases of acute sinusitis and 15 cases of chronic sinusitis were treated by puncture of the sinus, irrigation with isotonic saline solution, blowing out of the irrigation fluid and instillation into the maxillary sinus of 2 to 4 ml. of a 50,000 units per ml. penicillin solution. Analysis of the treatment showed that penicillin therapy is beneficial in both acute and chronic sinusitis and that this benefit is not confined to maxillary sinusitis; that treatment fails when there are marked chronic changes of the mucous membranes; that the treatment caused no irritation in the maxillary sinus and no other unfavorable side-effects; that the first instillation of penicillin, regardless of the causal microbe and its penicillin sensitivity, rendered the maxillary sinus sterile except in a few cases of chronic sinusitis; and that a high content of penicillin is demonstrable in the maxillary sinus secretion at least 2 to 3 days after instillation. 12 references. 4 tables.

Penicillin Aerosol Therapy in Sinusitis. *Frank J. Hynes, Manhattan Eye, Ear and Throat Hospital, New York, N. Y. Ann. Otol., Rhin. & Laryng. 58: 189-99, March 1949.*

This study was undertaken to determine the value of penicillin aerosol therapy in sinusitis. The aerosol technic was developed in an attempt to bring the penicillin into closer contact with the actual infecting organisms.

The apparatus used is that of Barach. It consists essentially of two nose pieces, a positive and negative pressure valve, a rebreathing bag, nebulizer and Venturi tube. The procedure consists of having the patient take three or four breaths of the penicillin vapor, followed by suction (60 mm. of mercury), alternating in this way until the penicillin is entirely vaporized. The principle involved is to obtain a negative pressure in the sinuses so that the aerosol will enter when inhaled under slight pressure. Patients were treated once daily with 40,000 units of penicillin. Each patient had a complete physical and x-ray examination and blood count. Cultures were taken at the start and finish of treatment. Local treatment consisted of making sure that the sinus openings were clear and available. This was accomplished by shrinkage and suction irrigation, although treatment was kept at a minimum to avoid a confusion of issues. Oxygen was used in all cases, since it was felt that aeration plays an important part in overcoming infections of the upper respiratory tract. The point was made that chemotherapy, in any form, is not to be used without due regard to the principles of good medicine and surgery: good otolaryngological diagnosis and treatment as indicated are still in order. In the first year of the study, 104 cases were treated. Clinically, the improvement was slight in 11, moderate in 33, marked in 17, and 23 were considered clinical cures. Of these, 17 showed definite improvement on follow-up x-ray examination. In addition, 108 more cases were treated and followed in the next year. Of these, the improvement was slight in 8, moderate in 12, marked in 17, and 35 were clinical cures. The average number of treatments was 10.6. There were six allergic reactions consisting of rash and headache.

Concerning the practical application of penicillin aerosol therapy in otolaryngology, the following conclusions were drawn: (1) Allergic rhinitis: Treatment is contra-indicated except in a proved case of penicillin-sensitive bacterial allergy. (2) Acute rhinitis: Results obtained are due to local treatment and general medical care, plus oxygen. (3) Acute sinusitis: Results are good if there is no inspissated pus in any of the sinus cavities. (4) Sinusitis in children: Because of lack of pain and ease of administration, penicillin aerosol, with proper administration of local therapy, usually obtains spectacular results. These results were often obtained after all other methods of treatment had failed. (5) Acute exacerbation of chronic sinusitis: Results are often excellent, shortening the duration of treatment and lessening the morbidity of the patient. (6) Chronic sinusitis: Occasionally, spectacular results may be obtained. At best, most cases of chronic sinusitis obtained temporary relief. (7) Psychoneurosis: Results entirely negative in spite of psychosomatic approach and supposedly impressive apparatus. 17 references. 19 pages of charts on request from the author.—*Author's abstract.*

Importance of Vasoconstriction in the Treatment of Acute and Chronic Maxillary Sinusitis. A. Reginald Everett, St. Luke's Hospital, New York, N. Y. New York State J. Med. 49: 417-19, Feb. 15, 1949.

A review of the literature reveals little reference to the importance of decongesting the mucous membrane lining the antrum. A detailed study and follow-up of 171 cases of acute and chronic maxillary sinusitis led to the belief that many of the failures with the local use of penicillin and the sulfonamides may be attributed to this.

The local use of penicillin, Pickrell's solution and tyrothricin when instilled into the antrum were of little value. However, the use of penicillin and of sodium sulfathiazole plus a vasoconstrictor were found to be highly efficacious in eradicating acute and chronic infections of the sinuses. A similar group of cases was treated by instilling only a vasoconstricting agent, 0.125% desoxephedrine; but the results were inferior to Sulmefrin and to Tersavin in both acute and chronic cases, but in the acute cases were superior to plain penicillin.

The best results, especially in the chronic cases, were obtained with an ephedrine salt of penicillin (Tersavin). Sixty acute and chronic cases were treated by instilling Tersavin directly into the antra immediately following saline irrigations. A total of 53 of these patients was cured. The average number of instillations required to effect a cure were 3.1 in the acute cases and 4.9 in the chronic.

Bacterial cultures were made in each of the 171 cases and the organisms encountered in the order of frequency were *pneumococcus*, *staphylococcus* *abus*, *staphylococcus aureus*, *streptococcus hemolyticus*, non-hemolytic streptococcus, *streptococcus viridans*, and *micrococcus catarrhalis*. There were 3 cases with hemophilus influenza bacillus and 2 cases with the colon aerogenes group.

None of the patients received any chemotherapy or antibiotic systemically. No serious evidence of irritation or of sensitivity has been encountered, nor have we noted any side or after effects from the ephedrine or the desoxyephedrine. 8 references. 3 tables.—*Author's abstract.*

Frontal Sinus Infections — Complications and Management. Claude D. Winborn, Dallas, Texas. Ann. Otol., Rhin. & Laryng. 58: 280-92, March 1949.

The decrease in mortality and morbidity rates in osteomyelitis of the frontal bone and intracranial extensions complicating frontal sinus infections has been considerable since the advent of antibiotic therapy. However, insufficient or improper use of antibiotics may allow a progressive extension of infection without characteristic signs and symptoms. The most frequent complication is osteomyelitis of the frontal bone. In the acute stage penicillin and sulfadiazine are combined in heavy doses. A trephine opening in the floor of the sinus may be necessary to allow the process to subside. Frequent x-ray studies are a valuable aid in watching the progress of the disease.

Extradural collections of pus usually produce no independent symptoms and are found at operation. Subdural empyema occurs more commonly in

acute infections while a frontal lobe abscess may be expected to complicate a recurrent or chronic infected sinus. A modification of the Killian procedure is the operation of choice. The diseased lining of the sinus is removed along with obviously necrotic bone. Intracranial abscesses must be extensively drained. In many cases, access is adequate through the posterior sinus plate but the more extensive abscesses must be drained through accessory burr holes. Five cases representing different frontal sinus complications are presented. 6 references.—*Author's abstract.*

The Importance of Sinusitis in Allergic Manifestations. *Russell C. Grove, New York, N. Y. Laryngoscope. 59: 653-65, June 1949.*

Sinusitis is an important etiologic factor in allergic manifestations. This paper discusses mainly the diagnosis and surgical treatment of chronic sinusitis as found in patients with asthma and includes a follow-up study of 200 of these patients who were operated upon. Sinusitis was the cause of asthma in 45% of 450 patients over 10 years of age. A careful history, rhinoscopy, and the use of the nasopharyngoscope are necessary. Plain roentgenograms should be made and if these are not satisfactory for a definite diagnosis, films should be made after the injection of radio-opaque solutions such as lipiodol or umbrathor, a colloidal solution of thorium dioxide. Complete allergic studies and medical examinations should be done.

It is emphasized that the type of pathology usually found is a chronic hyperplasia. Suppuration is not frequent and when present is usually done to a secondary infection. Bacteriologic studies have shown that these membranes are infected. The maxillary sinus is most frequently infected and the ethmoids next. Polyps occur in about 25% of the patients.

When surgery is indicated it should be done completely, that is, all the sinuses involved should be operated upon. The Caldwell-Luc was found to be the most satisfactory operation for the maxillary sinus and exenteration of the ethmoids is frequently necessary. Removal of foci of infection in the tonsils, adenoids and teeth should also be carried out. Two hundred patients with asthma secondary to sinusitis who were operated upon were followed postoperatively from one half to seventeen years. Of these, 69% of all patients showed improvement in their asthma; 79.9% of 146 patients who had their sinuses operated upon completely were improved; 61% of 107 patients whose asthma was primarily infective in type showed improvement, while 77.4% of 93 patients who showed associated skin-sensitive types of allergies were improved. Twenty-seven patients had a "window" resection, with only 40% improvement in their asthma. Many patients required a long period of time for improvement which may be due to the slow healing of infection in the cervical and bronchial lymph glands or in the bronchial membranes.

Practically all of the patients were treated with autogenous vaccines made from the sinus membranes removed at the time of operation. All patients who had associated sensitizations of clinical importance were given injections regularly. 3 tables.—*Author's abstract.*

3. Surgery

Tantalum in Rhinoplastic Surgery. *Samuel L. Fox, Baltimore, Md.* Ann. Otol., Rhin. & Laryng. 58: 40-54, March 1949.

For many years surgeons have sought an implant for building up tissue defects, especially that known as "saddle nose." The large number and variety of substances thus used suggest that none has been entirely satisfactory. Among the substances tried at various times are autoplasmic cartilage, vaselin, paraffin, celluloid, gold, silver, ivory, periosteum, catgut bundles, fascia, bovine cartilage, formalin-fixed cartilage, septal cartilage, bone, preserved isografts of cartilage, cartilage and bone combined, ticonium, plexiglass, vitalium, acrylic resins, cancellous bone from the ilium, and the newer plastics. The value and disadvantages of each of these substances is briefly reviewed, and it is concluded that no "ideal" tissue implant substance has yet been found. The qualifications for such an "ideal transplant" are that it be readily available in sufficient quantity, that it be of a consistency that will permit easy modeling, that it be capable of resisting infection and absorption, that it be well tolerated by the tissue, that it not be subject to change in shape after implantation, and that it become an integral part of the tissues where placed. Whereas good results can be obtained by the use of autografts of rib cartilage, or rib cartilage and bone, the many attempts to find a more readily available substance emphasize the fact that such autografts are not the "ideal" transplant. On the other hand, the alloplastic materials thus far introduced have proved to be incapable of becoming an integral part of the tissues, and sooner or later, after the slightest trauma, are extruded from the tissues.

One of the surgical advances resulting from World War II was the introduction of tantalum, first as a plate for closing cranial defects and later as a non-absorbable suture material and as a tissue transplant. The history of the discovery and isolation of tantalum is briefly reviewed, and its physical and chemical properties are given. A detailed review of the more than sixty papers reporting the clinical use of tantalum is presented.

The advantages of tantalum as an implant are stated to be its ready availability at nominal cost, its easy preparation into a "wool" of the proper size and shape at the operating table, its resistance to infection after implantation, its non-absorbability, the great tolerance of the tissues for the metal, and its ability to become an integral part of the tissues. Seven case reports are presented in which tantalum implants have been employed successfully by the author in rhinoplastic surgery. In one case an autograft of rib cartilage and bone had failed to survive, and the case was subsequently successfully corrected with a tantalum implant. 75 references. *Author's abstract.*

Cancellous Bone Grafts in Nasal Repair. *Maurice H. Cottle, Roland M. Loring, Robert Kirschman, Chicago, Ill., and Maurice H. Cohen, Peoria, Ill. Ann. Otol., Rhin. & Laryng. 58: 135-46, March 1949.*

The authors corroborate the value of the use of cancellous iliac bone as an ideal graft material for the correction of nasal deformities. The grafts are introduced into the nose via intranasal incisions and the recipient areas so prepared that they come in contact with freshly cut bone. Small wedges of cancellous bone may be placed beneath or upon the main graft to increase nasal projection. Grafting with cancellous bone may be performed with other intranasal and external nasal pyramid surgery, as the ten typical cases reported indicate. Successful "takes" occurred in every one of the 10 reported cases operated on in the manner described. 15 references. 6 figures.—*Author's abstract.*

Repair of the Septal Perforation a Rhinologic Problem. A Rhinoplastic Approach (Author's Technique). *Robert C. Seeley, New York, N. Y. Laryngoscope 59: 130-46, Feb. 1949.*

In the field of rhinology, one of the most troublesome conditions to be found is the symptom complex of septal perforation. Its importance varies in most cases in direct proportion to the etiologic factors producing it. The medical literature on the subject is notably sparse, particularly with reference to plastic reparative methods directed at closing the perforation.

SYMPTOMS

Patients with cartilaginous perforations usually complain of blockage of the nasal passages because of crust formations which accumulate on the margins of the perforations. This complaint is usually associated with atrophic rhinitis. External nasal deformity is a sequela to septal perforation, especially if there has been major destruction or necrosis of the quadrilateral cartilage.

ETIOLOGIC FACTORS

There are fundamentally three varieties of septal perforations: the most prevalent type is the perforation where cartilaginous portion alone is involved. The second type is the perforation involving the bony portion of the septum. The third type is the perforation involving both the bony and cartilaginous portion of the septum. The etiologic factors, associated with the above three types of septal perforations, may be classified as follows: (1) metabolic, (2) traumatic, (3) surgical, (4) chemical agents, (5) chronic atrophic sinus disease, (6) postoperative causes of septal perforation, (7) postoperative hematoma or post-traumatic hematoma, inadequately or improperly cared for, (8) septal abscess, as a result of nasal infection, (9) overzealous cauterization to control epistaxis, (10) congenital, (11) spontaneous perforations per se.

PATHOLOGY

The end-result is a drying and irritation of the mucous membrane with the ultimate replacement of the ciliated columnar epithelium with the transitional type.

TREATMENT

Medical Treatment: This is given with the use of bland ointment locally. When a constitutional disease is associated with the perforation, then the medical treatment is directed to that end.

Surgical treatment: Early submucous resection will often correct or alleviate the progress of the pathologic process. Recorded in the literature are four plastic procedures dealing with closure of the septal perforation: (1) Goldstein's operation, (2) Chevalier Jackson's procedure, (3) F. J. Pratt's operation, (4) McGivern's method. All four procedures make use of flaps which have mucous membrane on one side and perichondrium or tunica propria on the other. The backing of the flap must close by healing with granulation tissue. This is equally true of the donor site, for no covering is applied to the area from which the flap is borrowed. In consideration of these facts, it is difficult to rule out the possibility of intercurrent infection, as well as contracture of the membrane flap or the membranes proper. With such a possibility, the recurrence of the perforation is likely.

The scope of this paper is to present a surgical technic in the repair of the cartilaginous septal perforation to offset the disadvantages of previous flap methods of repair. The principle underlying the surgical technic proposed is the repair of the perforation by utilization of a double flap repair so that the continuity of the mucous membrane of the septum is restored on each half, right and left, of the septum.

SURGICAL REPAIR — AUTHOR'S TECHNIC

A marginal incision is made within the naris on each side. Through this incision, the mucous membrane is elevated subperichondrially from the lateral alar cartilage and from the inferior side of the upper lateral cartilages. This dissection is then carried towards the septal dorsum and the mucous membrane flap is liberated downward away from the dorsoseptal attachment. The dissection is further completed as far as the caudal or distal end of the septum circumscribing the perforation area on each side. Mobilization of the subperichondrial layer is continued into the region of the perpendicular plate dissecting the mucoperiosteum away from the inferior surface of the nasal bone along the anterior nasal fissure. This completely mobilizes the mucous membrane flap on the lateral and medial or septal wall so that the continuous mucous membrane blanket lies free in the nasal cavity. This mobilization on the septal side is carried down as far as the vomerine ridge or the upper surface of the hard palate. The mobilized flap thus obtained will permit adequate opportunity for direct suture closure of the perforated mucous membrane with silk or catgut after excising the marginal ring of the perforation. If necessary, a form of Z-plasty procedure can be adopted to obtain this end. This procedure is carried out on each side and then the mobilized flaps are replaced as near as possible in their former position, without undue tension. Suturing of the marginal wound area is then accomplished with interrupted silk sutures or catgut and an intranasal packing of xeroform gauze is lightly packed to maintain the mucous membrane in its anatomical relationship. A single layer of gelfoam, approximately one-half

by one and one-fourth inches in length, can be placed in a vertical plane between the mucous membrane or in the interperichondrial space to control postoperative hematoma. A thin strip of preserved or fresh cartilage may be implanted.

RESUME

The advantages of developing the mucous membrane blanket flap in rhinoplastic and submucous membrane operations, separate or combined, are: (1) It prevents injury to the olfactory area of the Schneiderian membrane. (2) The avoidance of injury to the sensory or motor nerves and vascular supply. (3) The prevention of scar formation. (4) The ability to visualize the abnormality of the septum, the vomer and the nasal bone, the knowledge of which presents the opportunity to apply adequate and accurate surgery to these supporting structures. (5) Preservation of the circulation and the innervating nerves result in earlier primary healing. (6) Better visualization is obtained for the necessary surgery. (7) One of the most important factors in the author's technic of mobilization of the mucosal flap is the prevention of atrophic rhinitis and sinusitis by the avoidance of injury to the circulation, thereby eliminating cicatrization of the membrane flaps.

The utilization of the blanket flap of the nasal mucous membrane may be ultimately of value in curing cases of atrophic rhinitis by improving the blood supply in the tunica propria. In addition, it is easier than a previously recommended procedure whereby the medial bony wall of the antra are fracture medialward to prevent atrophic rhinitis. 15 references. 10 figures.
—*Author's abstract.*

Nasoalveolar Cysts. *Jack B. Miller and Paul M. Moore, Jr., Cleveland, Ohio.* Ann. Otol., Rhin. & Laryng. 58: 200-11, March 1949.

Nasoalveolar cysts have been overlooked in American rhinologic literature. The diagnosis and treatment are simple once the condition is recognized. The cysts are formed from ectodermal rests at the site of origin of the maxilla and premaxilla. They are always found at the attachment of the ala of the nares. As they increase in size, they encroach on the nasal vestibule and cause a swelling in the floor of the nose, often elevating the anterior tip of the inferior turbinate and obliterating the nasofacial fold of the involved side. As the growth progresses, the swelling may be demonstrated at the gingivolabial junction. If the cyst becomes sufficiently large there may be a definite swelling over the maxillary sinus which extends upward toward the orbital rim of the maxilla. On palpation, the cyst is fairly fluctuant and partially movable. The patient usually complains of unilateral nasal obstruction or a swelling which is causing an embarrassing facial deformity. He seldom remarks about pain over the mass, despite the fact that the cysts are frequently secondarily infected. Of 85 cases reported, only 3 have occurred in men.

Roentgenograms are of importance in differential diagnosis in that little or no change is seen with nasoalveolar cysts, whereas definite changes

are seen in other conditions with which it might be confused. These cysts rest on bone and not in bone. On microscopy, the lining membrane of the cysts is typically columnar, with or without cilia. However, there may be considerable variation, owing to the possibility of infection and pressure over different areas of the cysts producing changes in the type of epithelial lining.

The treatment advocated is complete surgical excision done through a modified Caldwell-Luc approach. During the process of removal, it has been observed that these cysts firmly adhere to a shallow groove in the maxilla at the point of attachment of the ala of the nostril. Difficulty is therefore encountered in the attempt to remove the entire cyst and it is usually ruptured during the act of separation. 15 references. 3 figures.—*Author's abstract.*

Studies on the Pathologic Anatomy of the Unilateral Hare-Lip Nose. *W. C. Huffman and D. M. Lierle, State University of Iowa Hospitals, Iowa City, Iowa. Plast. & Reconstruct. Surg. 4: 225-34, May 1949.*

The present observations have been made in living patients from photographs, masks and surgical experience. The malformation of the nose seems to be due less to the inherent anomalies in size and shape of the nasal skeleton than to their faulty position. To avoid confusion in discussion the authors use the terms cephalad, caudad, dorsal and ventral. It is essential to correct septal anomalies before proceeding to surgical operation on the external nose. The septum must be placed in its normal position. Disproportion of the external nose can be evaluated only following careful palpation and examination from full face, profile and basal views.

The defect may appear in the caudal third (lobule), middle third (upper cartilaginous wall) or cephalad third (bony vault) of the nose. Most asymmetries are found in the lobule. Composite photos are presented showing the points of abnormality seen from various views. Some abnormalities can be seen in several views, others in only one. Nasal deformities may be present in lips requiring secondary repair. Best results are obtained in such cases by reconstruction of the lip and nose in the same operation. The authors believe that most nasal deformities in unilateral hare-lip are due to rotation of one or both lower lateral cartilages rather than to inherent aberrations in their sizes and shapes. They have devised a basic procedure to place them in normal position, which will be published as soon as a sufficient number of cases have been treated and followed up. The actual or apparent tip deviation can be demonstrated by a line drawn through the middle of a full face photo, by covering the involved side of the nose or by making a composite double print photo reversing the uninvolved side, and substituting this for the involved side. 10 figures.

LARYNGOLOGY

1. Larynx

Prophylactic and Therapeutic Indications for Tracheotomy During Surgical Intervention. *Pascal Friscia and Harold F. Bishop, New York City.* New York State J. Med. 49: 1550-53. July 1, 1949.

The surgical conditions which may require tracheotomy to maintain an open airway include 1) neoplasms in or in proximity to the upper air tract, 2) severe or moderately severe and spreading infection involving the pharynx, larynx or adjoining structures, and 3) cases of severe injury to the structures of the upper air passages. Not only the proper indications for tracheotomy must be realized but also the optimum time for its institution must be determined. In cases of carcinoma requiring total laryngectomy, it is best to do a preliminary tracheotomy. Patient suffering from chronic partial obstruction and suddenly developing acute obstruction must be granted two weeks of post-tracheotomy convalescence before the main operation, so that they can regain physiologic equilibrium. Or a laryngectomy may be performed under regional anesthesia with bilateral deep and superficial cervical block, with tracheotomy at the close of the operation. However this method exposes the patient to psychic trauma, pain and hypoxia. The danger of dislodging necrotic tumor elements may be avoided by oral or nasal introduction of an endotracheal tube previous to operation. In the past two years, the authors have performed 11 total laryngectomies and 4 mandibulectomies. In 4 cases, a first-stage tracheotomy was performed one week before the main operation. In 4 cases, a transoral endotracheal tube was used during the early stages of the operation and tracheotomy was instituted some time before its termination. Seven cases were operated on under regional or local anesthesia, followed immediately by tracheotomy, and the operation then continued with anesthesia through a sterile tube. There was 1 death in a patient suffering from chronic hypoxia.

Preliminary tracheotomy was done in all cases with maxillofacial surgery necessary for severe wounds of the head and neck. It is emphasized that in a case in which shrapnel is lodged near the larynx or between the tongue and the pharynx there may be no respiratory distress when the patient is first examined, but collapse may follow removal of the object. Also postoperative edema and inflammation may give rise to obstruction of the air passages. It is important that the lower air tract also be kept free. In operating on these patients, the surgeon should always be placed at the head of the operating table with the patient in a moderate Trendelenburg position. This helps to keep the anesthetic tubing and apparatus out of the operative field and is also of aid in gravitation of secretions and blood from the lower respiratory tract. 13 references.

Paralysis of the Larynx Following a Prophylactic Injection of Tetanus Antitoxin. *Henry Dintenfass, Philadelphia, Pa.* Laryngoscope. 59: 369-71, April 1949.

Paralysis of the larynx may occur after administration of tetanus antitoxin given only for prophylactic purposes. It is often associated with involvement of other nerve structures. In the case presented, the recurrent laryngeal nerve was simultaneously involved with the brachial plexus. A white 33 year old male sustained an injury to the palm of the left hand, and the next day 1,500 units of tetanus antitoxin was injected into the left arm after sensitivity tests of the skin proved negative. In the succeeding week he complained of nausea with general bodily weakness, especially marked in both upper extremities. On the twelfth day following the antitoxin injection, paralysis of the larynx was evident. He was unable to talk above a whisper. Examination showed the vocal cords to be in complete abduction with loss of tension. There was also present a thinning of the musculature of the left shoulder girdle. The laryngeal picture remained the same for nine weeks, when beginning vocal cord movements were observed. In several days definite improvement occurred and phonation became quite normal. Five months later, although the voice quality continued good, atrophy of the left arm and shoulder muscles still persisted. 7 references.

The "Reverse King Operation." A Surgical Procedure for Restoration of Phonation in Cases of Aphonia Due To Unilateral Vocal Cord Paralysis. *Lewis F. Morrison, University of California Medical School, San Francisco, Calif.* Ann. Otol., Rhin. & Laryng. 57: 945-56, Dec. 1948.

The procedure is designed to restore phonation in cases of unilateral adductor paralysis wherein the patient is unable to phonate comfortably and efficiently due to the fact that the opposite or unparalyzed cord is not able to overcompensate sufficiently to close the glottic chink. The restoration of a satisfactory functioning voice and the maintenance of an adequate airway is accomplished by moving the paralyzed cord and arytenoid to the midline and fixing the arytenoid and cord in that position.

The surgical approach is similar to that employed in the King operation for restoration of function and airway in cases of bilateral abductor paralysis. The involved arytenoid is identified and disarticulated at the crico-arytenoid joint. The interarytenoideus fibers are cut free from the arytenoid. Simple placement of the arytenoid on the upper surface of the cricoid cartilage at the midline is not mechanically correct, since it would elevate both the arytenoid and cord 2 to 4 mm. above the normal functioning level. In order to avoid this malposition and at the same time obtain a better base for fixation, a section of the posterior superior border of the cricoid cartilage from the midline to the cricoarytenoid articular area is removed. Sufficient cartilage must be removed so that the two vocal cords will be on the same level when the arytenoid is fixed in its new position. When the correct anatomic relations have been obtained the arytenoid is sutured to the prepared area on the cricoid with any non-absorbable suture material.

The report is based on the results of anatomic reconstructions in fresh cadaver material and one living case that obtained a wholly satisfactory result. 3 figures.—*Author's abstract.*

Left Vocal-Cord Paralysis Associated with Hypertensive Heart Disease. *William C. L. Diefenbach, Albany Medical College, Albany, N. Y.* New England J. Med. 240: 419-20, Mar. 17, 1949.

Left vocal-cord paralysis is frequently observed in various forms of intrathoracic disease, such as aortic aneurysm, mediastinal tumors, pleuritic thickening and pulmonary tuberculosis. A variety of cardiac lesions, including mitral stenosis, arteriosclerotic heart disease, congenital heart disease and aneurysms of the large vessels, may also produce this syndrome. Its occurrence in only a small percentage of cardiac conditions is not clear. Although a number of hypotheses have been proposed, the exact mechanism has not been elucidated. Cardiac hypertrophy, pulmonary artery engorgement, lymph node compression, and cicatrization of the pulmonary artery may occur at any time and is manifested by changes in the voice, which may become hoarse and indistinct. Laryngoscopy may show complete paralysis. The paralysis may appear suddenly or gradually. In some cases the voice disturbance may be the first symptom that leads the patient to consult a physician. If the pressure has not been too severe or too prolonged, function will return with removal of the cause. The prognosis in these cases is that of nerve injury from pressure in general. Two cases of hypertensive heart disease with vocal-cord paralysis are presented. The literature is reviewed and a bibliography is included. 7 references.—*Author's abstract.*

Vocalization and Arrest of Speech. *Wilder Penfield and Theodore Rasmussen, McGill University and Montreal Neurological Institute, Montreal, Canada.* Arch. Neurol. & Psychiat. 61: 21-27, Jan. 1949.

Electrical stimulation of the human cortex was studied, a record being made of 29 cases under local anesthesia. The area for vocalization occurs below the hand area and above that for swallowing, but it has no fixed relation in the sequence of the various elements of the face area. In one-half the cases vocalization occurred along with some lip movement; in one-quarter it occurred with other motor or sensory accompaniment within the face area; in another one-quarter it occurred as a solitary phenomenon. The area for vocalization appears to overlap that for the lips and tongue.

Arrest of speech (i.e., the subject wants to talk but cannot), occurs by stimulating the same sensorimotor area as for vocalization. This is the area corresponding to that of the tongue, jaw, and especially the lips, but often extending down into the area for the throat and swallowing. Speech arrest was produced by stimulating the precentral and postcentral gyri at various points in the face area and was produced equally easily in both hemispheres. Speech interference results from stimulation within the sensorimotor convolutions of the two hemispheres with equal frequency. The localization of points from which speech was arrested is over a great extent of the sensorimotor

strip. In general, the order of motor and sensory representation does not vary, but speech arrest has no fixed position within this sequence except that it lies within the zone devoted to the lips, tongue and mouth.

In the dominant hemisphere, speech may be prevented by stimulating one or two convolutions just anterior to the precentral gyrus and just above the fissure of Sylvius. It may be arrested or interfered with by stimulating posterior to the sensory representation of the lips and mouth.

Areas in the sensorimotor convolutions of each hemisphere, in which vocalization, lip and tongue movements are represented bilaterally, are word articulation zones. Speech is possible with one zone removed. Evidence indicates the presence of a frontal and a parietal speech area in the dominant hemisphere. The integrity of both areas is necessary to the mental processes involved in speaking.

These two speech areas are considered a second motor and sensory area corresponding to the sensorimotor zone for the lips, tongue and vocalization. The neurone connections between these second areas and the sensorimotor zone are not transcortical, since the face and dominant arm area can be removed without aphasia. The neurone connections of the second speech areas must be via subcortical paths to the sensorimotor word articulation area of the rolandic convolution on both sides. 1 reference. 3. figures.

Papilloma of the Larynx and Bowen's Disease. (*Papillomes du larynx et maladie de Bowen.*) A. Dupont. Arch. belges dermat. et syph. 4: 301-305, Dec. 1948.

Two cases of papilloma of the larynx, in males, 70 and 65 years of age respectively, are reported. In the first patient the condition had been present for several years; in the other, for about 11 months. The symptoms of each consisted of periods of hoarseness or aphonia followed by a regaining of vocal function. The hoarse periods were observed laryngoscopically to coincide with the development of villous appearing, whitish horny excrescences on the anterior portion of the left vocal cord, the process at times spreading to the anterior laryngeal commissure and even over onto the right cord. The tumors would then regress, perhaps by the casting off of the horny excrescences.

Biopsy specimens removed during the most exacerbated stages of the growth in each case disclosed a histologic picture which while different in details, was fundamentally similar, and suggested Bowen's disease in both patients. The fundamental characteristics consisted of a thickened and hypertrophic condition of the epithelium which, however, at no point exhibited any tendency to invade the dermis; in irregularity of shape and orientation of the spinous layer of cells; and in polymorphism of the chromatin-rich nuclei presenting numerous lobulated or even multiform aspects and occasional mitoses scattered throughout the stratum germinativum, but nowhere actually atypical. There was a para-keratosis of the cornified layer in both patients. In the superficial layers of the dermis patches of infiltration were observed, made up of plasma cells, histiocytes and small round cells.

Chondroma and Chondrosarcoma of the Larynx. *Melvin R. Link, Columbia University and Presbyterian Hospital, New York, N. Y.* Ann. Otol., Rhin. & Laryng. 58: 70-85, March 1949.

Neoplasms of the laryngeal cartilages are comparatively rare. The author presents and discusses 2 cases, 1 each of chondroma and chondrosarcoma, from the standpoint of site, pathology, symptoms, diagnosis and treatment. In discussion on microscopic differentiation between benign and malignant cartilaginous tumors, he believes that the understanding of chondrosarcoma is still being hindered by the attempt to make a diagnosis of chondrosarcoma on a histologic basis, which is often difficult, if not impossible. This difficulty exists only for the better differentiated cases. He quotes Lichenstein and Jaffe, who believe that a cartilage tumor should no longer be regarded as benign if, when viable and not heavily calcified areas are examined, it shows even in scattered fields (1) many cells with plump nuclei, (2) more than an occasional cell with two such nuclei and especially (3) any giant cell with large single or multiple nuclei or with clumps of chromatin.

The author considers that the only treatment for these neoplasms is surgical excision and that the surgical treatment should be definitely of the radical type. 12 references. 4 figures.—*Author's abstract.*

Amyloid Tumors of the Larynx, Trachea or Bronchi. A Report of 15 Cases. *David B. Stark and Gordon B. New, Rochester, Minn.* Ann. Otol., Rhin. & Laryng. 58: 117-34, March 1949.

The larynx and trachea are the most common sites of localized deposition of amyloid. Although of infrequent occurrence, the disease may present definite diagnostic and therapeutic problems.

The chemical composition of amyloid has not been exactly determined. It would appear to be somewhat inconstant, consisting of one or more protein fractions and a sulfur-containing polysaccharide similar, at least to chondroitin-sulfuric acid. The distinctive reaction of amyloid with iodine, iodine and sulfuric acid, Congo red and methyl violet and related aniline dyes has distinguished this material from other hyaline materials. A simple clinico-pathologic classification of amyloid disease is: (1) primary amyloidosis, (2) secondary amyloidosis, (3) tumor-forming amyloidosis, and (4) amyloidosis associated with multiple myelomas. This paper was concerned only with the tumor-forming amyloidosis involving the larynx, trachea or bronchi, and presented a brief review of the literature.

Fifteen cases with microscopically verified amyloid lesions involving the larynx, trachea or bronchi formed the basis for the study presented. Men were more frequently afflicted than women in a ratio of 2:1. The majority of the patients were in the sixth or seventh decade of life at the time the diagnosis was made. The presenting symptoms were hoarseness and dyspnea usually of from one year to two years' duration. The nature and severity of the symptoms present were dependent entirely on the size and location of the lesion. The larynx was the organ most frequently involved. Four of the lesions were well localized. The remainder were diffuse. Usually the color of the lesion

was not striking, although three appeared yellow and one appeared of a grey color. The pathologic features considered characteristic of the tumors were: (1) The homogeneous amyloid material occurred mainly in the form of "flakes" or "concentric-layered masses", and (2) this amyloid material reacted characteristically with one or more of the so-called amyloid stains.

In no instance was there a general debilitating disease of the type which might be considered as predisposing to the secondary form of amyloidosis. The only observation considered significant was the general age group to which these patients belonged: the age group in which degenerative processes of many kinds do occur.

Classification of the tumors into the localized tumor-forming variety and the diffuse infiltrating variety was considered of significance in determining the type of treatment to be employed and the prognosis after treatment. The localized tumor was surgically removed, with an excellent functional result. The diffuse lesion involving the subglottic region and the upper part of the trachea was removed with immediate grafting of the resultant denuded area. A permanent tracheostoma was avoided and the functional results were excellent. The functional results obtained by treatment of the diffuse lesion involving the glottis proper were not as satisfactory. The prognosis as to life was excellent, with the possible exception of those patients who had endobronchial lesions. The observation that patients live many years with evidence of the persistent presence of the intra-laryngeal tumor, but without progression of the symptoms to the point at which tracheotomy is required to provide an adequate airway, was considered good evidence that the disease tends to be self-limiting. In no instance in this series could the death of a patient be ascribed to the amyloid tumor. 48 references. 1 table. 4 figures.—*Author's abstract.*

Amyloid "Tumour" of the Larynx Requiring Laryngofissure. C. C. Halliday and R. H. Bettington, Sydney, Australia. *M. J. Australia* 1: 100-101, Jan. 22, 1949.

In the case reported, the patient, a 57 year old man, had noted intermittent hoarseness since an attack of acute bronchitis three years previously; he had also had spasms of choking. Indirect laryngoscopic examination showed a mass with the appearance of a pedunculated papilloma between the vocal cords. Under direct laryngoscopy the "papilloma" was found to be attached along almost the whole border of the right vocal cord. A biopsy specimen was taken; the pathologist reported no evidence of tumor formation, but that the surface epithelium was hyperkeratotic and hyperplastic. Another indirect laryngoscopy showed an apparently papillomatous type of growth acting as a ball and socket in the larynx. A laryngofissure was done for removal of the growth; pathologic examination showed amyloid changes, and a diagnosis of amyloid tumor (fibroma) was made. It was pointed out by the pathologist that amyloid tissue sometimes occurred in small connective tissue growths in the larynx. The patient was discharged from the hospital with the larynx apparently clean and the wound healed; gentle breathing exercises and laryngeal examinations once a month were advised. 1 figure.

Cancer of the Larynx. Five Year End Results in a Series of Patients Treated Between 1930 and 1942. *Chevalier L. Jackson, John V. Blady, Charles M. Norris and Walter H. Maloney, Temple University Hospital, Philadelphia, Pa. J. A. M. A. 138: 1080-83, Dec. 11, 1948.*

Cancer of the larynx was observed in 612 cases at the Temple University Hospital from 1930 to 1947, inclusive. An analysis of the initial treatments given showed that laryngofissure was employed in 209 of these cases, total laryngectomy in 244, and irradiation in 159.

The authors present five-year end results in all cases treated by them from 1930 to 1942 inclusive. Analysis of determinate cases without metastasis when first seen showed that of 102 treated by laryngofissure, 83 (81%) survived five or more years without recurrence or metastasis, 23 (66%) of the 35 cases in which laryngectomy was performed by the authors (excluding those operated on by others) survived five or more years without evidence of disease, and 35 (51%) of those treated initially by irradiation were classed as five-year cures. Of 14 patients with metastasis when first seen, treated by irradiation, none survived five years.

In 14 (74%) of the 19 cases in which recurrence developed following laryngofissure, the interval between the initial operation and recurrence was less than three years. Four of the 5 remaining recurrences developed after five years (1 each in the seventh, ninth, twelfth and fifteenth years). The authors suggest, therefore, that three-year statistics have some value and that five-year statistics are by no means final. Thirteen cases of recurrence after laryngofissure are now determinate following secondary treatment by a second laryngofissure, laryngectomy, irradiation or a combined method; of these, 7 (54%) have been salvaged and are now five-year cures.

Of 12 patients who developed recurrence or metastasis following laryngectomy, only one was salvaged by subsequent treatment. Of 20 cases in which recurrence developed following treatment by irradiation, 7 were salvaged and are now five-year cures (5 by a second course of irradiation, and 2 by laryngectomy). Of 33 determinate cases in which metastases developed following treatment of the primary tumor by laryngofissure, laryngectomy or irradiation, 7 (21%) were salvaged by irradiation, surgery (neck dissection), radon seed implantation, or a combination of these.

Since 1940, the treatment of cervical metastases from cancer of the larynx at the Temple University Hospital has been as follows: For patients presenting metastases on admission, roentgen treatment is generally employed for treatment of the primary lesion in the larynx; if possible, the metastases are incorporated in the same portal. After the irradiation, either before severe radiation epithelitis develops or after it has completely healed, the metastases are surgically exposed and radon is implanted in a tissue dosage of 5,000 to 10,000 gamma roentgens, or a neck dissection with or without implantation of radon is performed. More recently, we have treated a number of patients by radical neck dissection followed by external radiation to the primary lesion. In a few cases laryngectomy combined with neck

dissection has been done. For metastases occurring after the primary disease has been controlled, a radical neck dissection is performed, and radon is implanted when there is perinodal infiltration.

The final survival rates (including cases salvaged by subsequent treatment when the initial treatment failed) in cases without metastasis when first seen were, for the laryngofissure group, 88%; for the laryngectomy group, 65%; and for the group treated initially by irradiation, 64%. 6 tables.—*Author's abstract.*

The Diagnosis and Treatment of Acute Laryngotracheobronchitis. *George B. Logan, Mayo Clinic, Rochester, Minn.* Dis. of Chest 15: 85-91, Jan. 1949.

Acute laryngotracheobronchitis is a descriptive pathologic term for a disease of varied bacterial etiology. It has been shown to have resulted from infection by *Streptococcus hemolyticus*, *Streptococcus viridans*, *Staphylococcus aureus*, various pneumococci, *Hemophilus influenzae*, and possibly on occasion by a virus. It is a disease most to be feared in children aged less than 1 year. The early symptoms are usually a harsh brassy cough, and inspiratory stridor. As the disease progresses, the classic signs of laryngeal obstruction are noted. Fever is usually present but may not be present at the onset. The pathologic changes noted in the tracheobronchial tree are edema, and thick, ropy, gummy, tenacious secretions. Edema and inflammation of the subglottic region are responsible for most of the symptoms of laryngeal obstruction.

Treatment is aimed at thinning the secretions, combatting an infectious agent and maintaining a constant vigilance for evidence of respiratory obstruction. In few other cases is constant, intelligent nursing care so important. Secretions are thinned by providing an atmosphere of high humidity produced by steam kettles or preferably by mechanical or oxygen-driven humidifiers. Unmoistened oxygen should never be used. Carbon dioxide inhalations and one of the iodides administered orally may be used as adjuncts. The fluid intake should be adequate. Fluids should be used parenterally if necessary. Transfusions of a small quantity of blood on one or more occasions may be carried out.

Throat cultures and, if tracheotomy is performed, cultures of the tracheal secretions should be made. Penicillin by the intramuscular route is preferable when the infection is caused by streptococci, staphylococci, or pneumococci. It is not wise to depend on the oral route. Streptomycin is best used for treating infections caused by *Hemophilus influenzae*. Sulfadiazine, used orally or subcutaneously as a 5% solution of the sodium salt, is still a valuable adjunct to antibiotic therapy. It still may be used alone in treating any of the above-mentioned infectious agents.

Tracheotomy is preferable to intubation. It is indicated if the patient's dyspnea increases and if signs of laryngeal obstruction become more marked despite the use of moistening apparatus. Extreme restlessness, cyanosis, and fatigue are also considered indications for tracheotomy. Ideally, it is done

after a bronchoscopic examination and after crusts and secretions have been sucked out through the bronchoscope and while the bronchoscope is still in place. After tracheotomy has been performed, the air entering the tube must be kept moist. Narcotic sedatives, atropine, and antihistamine drugs are contraindicated in treating infants and children who have this disease. 8 references. 3 figures.—*Author's abstract.*

Streptomycin in the Treatment of *Hemophilus Influenzae* Laryngotracheobronchitis. C. O. Terrel, Jr. and Carl S. Hoar, Fort Worth, Tex. J. Pediat. 34: 139-42, Feb. 1949.

Four cases of laryngotracheobronchitis due to *Hemophilus influenzae* in young infants are reported. They were desperately ill with marked respiratory distress. The throat findings were not uniform. There was moderate retraction above the jugular notch and marked sternal retraction. The inspiratory breath sounds were rasping and there was an expiratory wheeze. There were many fine rales in both lung fields. *H. influenzae* was recovered from the throats of all four patients.

In every case there was definite improvement after 12 hours of streptomycin therapy and in 72 hours the patients were breathing easily. There were no clinical characteristics in these young infants which would distinguish these cases from laryngotracheobronchitis due to other organisms.

It is suggested that streptomycin be given immediately to all cases of laryngotracheobronchitis occurring in young infants and continued until the throat culture reveals a nonsusceptible organism. 6 references.—*Author's abstract.*

2. Pharynx and Nasopharynx

Nasopharyngeal Tumours. J. I. Munro Black, Newcastle-upon-Tyne, England. J. Laryng. & Otol. 63: 342-49, June 1949.

Among simple tumors the so-called fibroma is the only one of usual occurrence. It is usually found in young males, has a varying rate of growth and ceases to enlarge when the host reaches the age of about 20. The mass ordinarily arises from a broad base in the region of the basi-sphenoid. As it enlarges, fills the nasopharynx and undergoes recurring superficial infections, it acquires secondary attachments and ultimately may have complex connections. Untreated, this lesion is said to run a fatal course in 3 to 6 years, although if it does not form until the patient is in his twenties, growth of the lesion may cease and retrogression is said to occur. Surgical removal is the treatment of choice unless it is impossible or too dangerous.

The various malignant neoplasms are discussed. The presence of one sign or symptom is enough to warrant investigation of the possibility of a nasopharyngeal tumor. Diagnosis is based on x-ray study of the base of the skull, which may show enlargement by bone erosion of the foramen lacerum; digital examination under anesthesia; a search for distant metastases; and biopsy of the primary tumor or one of the neck glands.

When the tumor is so situated that excision is possible, the prognosis may be more favorable in keratinizing squamous carcinoma than in the anaplastic lesion. However, the highly malignant anaplastic neoplasms and sarcomata are ordinarily radiosensitive and thus permit a better prognosis. The total five year cure rate is seldom more than 20% after appropriate radiotherapy. In the presence of neurologic signs, the rate falls to about 10%. In cases without destruction of the base of the skull, the cure rate is approximately 25%. The best cure rate, 40%, is found in cases with lympho-epitheliomata types of tumors. Since neurologic disturbances, which cause the most troublesome symptoms, are initially produced by pressure rather than by direct infiltration into the nerves, irradiation may be used as a suitable palliative measure. Although nearly 75% of such cases may be made symptom-free, three-quarters of these will relapse within one year. Death, which usually occurs after an average of two years, is frequently the result of intracranial invasion. However, about 25% of the fatal cases exhibit distant metastases. 0 references.

Radium Therapy for Lymphoid Hyperplasia of the Nasopharynx.
George N. Thrift, Richmond, Va. Virginia M. Monthly 76: 239-42, May 1949.

A series of 65 cases of lymphoid hyperplasia of the nasopharynx were subjected to radium therapy. The treatment was completed in 32 cases, with objective improvement in 80 to 85% and subjective improvement in 70 to 75%. Individuals varied greatly in their response to this form of treatment. The author was greatly disappointed in the results obtained in children especially. When large amounts of lymphoid tissue are present, radium therapy should be preceded by adenoidectomy. The poor response in children was attributed to a selection of cases with an excess of nasopharyngeal tissue. There were no complications, and most of the cases showed some improvement and some showed dramatic improvement. All types of defective hearing due to lesions in the middle and inner ear in adults occur also in children from 8 to 14 years of age. Since it has been suggested that these conditions in children constitute the beginning of deafness in the adult, early treatment is indicated to prevent deafness.

Adenoids obstructing the eustachian tubes should be removed, but even after clean adenoidectomy these growths show a tendency to recur, causing partial or complete obstruction of the eustachian tubes, with impairment of hearing. It is impossible to remove the lymphoid tissue completely in this region. It has been suggested that various factors contribute to stimulate this regrowth, including infection, endocrine disturbances and allergies. It has been demonstrated that 18 per cent of 1,365 Baltimore school children believed to have perfect hearing, have an impairment for high tones due to regrowth of lymphoid tissue in the nasopharynx following adenoidectomy, and that lymphoid tissue is more susceptible to infection than other nasopharyngeal tissues. They easily become a chronic focus of infection which

may spread to the ears, sinuses and larynx. Such regrowths are also frequently found associated with allergies. Crowe, Proctor and Gay have employed radium therapy in such cases.

A 7-in. nasal applicator with a monel metal tubular chamber 15 mm. long, with an inside diameter of 1.6 mm., a wall thickness of 0.3 mm., and an outside diameter of 2.3 mm. is employed. The chamber contains 50 mm. of radium sulfate. The absorption capacity of the filter is proportional to its density. Nearly all beta rays are absorbed in the first 3 mm. of tissue, but 6 to 7% are still detectable after passing through 20 mm. of tissue. Less than 10% of the gamma rays are absorbed. The strength of the latter is inversely proportional to the square of the distance.

The floor of the nose and pharynx are first swabbed with a 10% solution of cocaine. The radium applicator is then inserted through the inferior meatus into the nasopharynx and held gently against the lateral wall with the aid of the nasopharyngoscope. Careful placing of the applicator in contact with the tissue to be removed is important. The dosage used is 12 1/2 min. on each side of the nasopharynx at two-week intervals for 3 treatments. After 3 months, the patient returns for his final examination. If symptoms persist and there is more lymphoid tissue, further treatment may be required. Tuning fork and audiometer tests are used to detect loss of hearing. 11 references. 8 figures (audiograms).

Evaluation of the Effects of Radiation on Non-Malignant Lesions of the Nasopharynx. *M. H. Cutler, Richard E. Marcus and Francis L. Lederer, University of Illinois, Chicago, Ill. Radiology 52: 816-18, June 1949.*

The authors used Crowe's method of application of radium to the orifices of the eustachian tubes, according to the modifications described in 1947, on a series of 50 patients followed up for one year. In a first group of cases with fixed otologic impairment, nerve deafness or conductive deafness of otosclerotic or adhesive nature, the results were disappointing as had been expected. In a second group of patients with an allergic background, all of whom had been subjected to removal of the tonsils and adenoids, but who suffered from difficult nasal breathing, postnasal drainage, sneezing, coughing, otalgia and mouth-breathing with associated paranasal infection, but without loss of hearing, marked improvement was obtained in 23 of 25 cases. This improvement lasted for two to four months; but complete alleviation was not expected. It is suggested that improvement of nasal and eustachian tube ventilation produced by this method might prevent future hearing loss. Radiation was combined with other treatments in all these children.

In a group of 7 adults and 1 child with clicking noises in the ear, tinnitus and intermittent "stopped up" sensation, indicating eustachian tube obstruction, but without hearing loss, improvement of some of the symptoms occurred in 4 cases. In 3 cases of chronic aural discharge, no change in the amount or nature of the discharge was noted following treatment. 12 references.

Aplastic Global Myelosis with Necrotic Lesions of the Oropharynx in Two Young Syphilitics Treated with Arsenobenzol, Bismuth and Sulfonamides. (*Mielosi globale aplastica con manifestazioni necrotiche oro-faringee in due giovani luetici, curati con arsenobenzoli, bismutici e sulfamidici.*) Fabio Fabbi, *Clinica otorinolaringologica dell'Università di Bologna*. Oto-rino-laringol. italiana 17: 331-40, 1948.

Rapidly fatal cases of aplastic global myelosis are described in two young men who had received antisyphilitic treatment with arsenobenzol and bismuth and sulfonamide therapy for necrotic oropharyngeal lesions. The history and clinical observation in both cases suggested secondary agranulocytosis but the blood picture showed aplastic global myelosis. In one of the cases a serious vitamin deficiency was suspected, but was excluded because of the absence of other symptoms of this condition. Autopsy findings showed marked involvement of the hematopoietic organs. Erythropoietic, megacaryopoietic and leukopoietic systems were all affected. Contrary to experimental findings, numerous clinical cases have been reported in which arsenobenzol therapy has caused anemia, thrombopenia and neutropenia. Of the three groups of arsenobenzol blood dyscrasia described by MacCarthy and Wilson, i.e., the thrombopenic, the agranulocytic and the aplastic, the last would cover the cases here reported. The mortality rate of this group is said to be 83%. Aplastic global myelosis does not respond to treatment, and is characterized clinically by severe anemia and hemorrhagic diathesis. Considering the widespread use of the drugs mentioned, it seems puzzling that only a few patients develop this condition.

Among the various conditions suggested as possible explanations for the development of these blood dyscrasias in certain patients, may be mentioned allergy, toxicity of the special drug employed, idiosyncrasy, primary susceptibility of the bone marrow, idiopathic granulocytopenic constitution, a special disposition of the hematopoietic system to abnormal reactions and the varying individual resistance to the syphilitic virus.

In the present cases, the author believes that the toxic action of the arsenobenzol and bismuth on the bone marrow potentiated by that of the sulfonamides finally led to the development of an aplastic anemia. The bone marrow, already sensitized by the syphilitic infection, finally lost its power of resistance to the additional toxins. 17 references.

Tracheal Tumors in Infants and Children. Joseph G. Gilbert, Benjamin Kaufman and Laurence A. Mazzarella, *Kingston Avenue Hospital for Contagious Diseases, Brooklyn, N. Y.* J. Pediat. 35: 63-69, July 1949.

Two cases of tracheal tumor in children are described, together with a review of the literature. In all, 41 cases have been reported, as compared with 488 cases in adults. In children, the types of tracheal tumor encountered are papilloma in 56%, fibroma in 21.6%, and angiomata in 9.7%. Only 3 malignancies have been reported. They were all sarcomas and were all in females. The incidence of malignancy in children is 7 1/2% as compared

with 40 per cent in adults. In adults, the tumor is found most frequently in order of decreasing incidence in the lower, upper and middle thirds of the trachea. In children the upper third is most often involved and the lower third much less frequently.

Symptoms depend upon the type of the tumor, its attachment and size, and the width of the trachea. Tumors of the lower third extending into the bronchi may cause partial or complete atelectasis with wheezing harsh respiration. The tumors of the upper third may affect the function of the vocal cords and also cause noisy and difficult breathing. Tumors of the middle third cause few symptoms and may remain unrecognized. Pedicled tumors move with the respiratory excursions. A pedicled tumor of the lower third might cause atelectasis by obstruction of a bronchus during inspiration. Tumors of the upper third have few inspiratory but more expiratory symptoms. Tumors with a broad base have few symptoms. The symptoms are worse when the tumors are large in proportion to the width of the trachea.

In differential diagnosis one has to consider laryngismus stridulus, and cysts and papilloma of the larynx.

The authors' first case was that of a white male infant of 11 months, who had breathed noisily since birth and developed a retropharyngeal abscess with severe respiratory difficulty. He was admitted for croup in a moribund condition. In croupy children, tumor of the trachea is often not suspected and cannot be revealed by laryngoscopy without bronchoscopy. In this case, tracheotomy revealed a capillary hemangioma of the tracheal wall, 3 cm. below the vocal cords and filling one-third of the lumen. Following removal of the tumor the child made an uneventful recovery.

The second child, a female Negro of 11 months, was likewise admitted in extremis for progressive cough and dyspnea. An emergency tracheotomy was done, adrenaline was injected into the heart and artificial respiration was applied. Incision of a large swelling in the right side of the throat yielded foul pus. The abscess was incised twice and dilated. After recovering from bronchopneumonia the patient was discharged. On readmission, she had been suffering from cough, hoarseness and stridor for about a week. In the interim she had received diphtheria toxoid. A nondiphtheritic croup was suspected. Bronchoscopy revealed a small, flapping tumor on the anterior wall of the trachea at the level of the seventh cervical vertebra and covered with mucosa. Biopsy revealed a fibroangiomaticous polyp. Subsequent x-ray examination revealed absence of any dense mass. The retropharyngeal space had returned to its normal size. The patient was discharged in good condition with normal respiration. 19 references. 3 figures.

Dislocation of the Sac in Zenker's Diverticulum. *Richard Waldapfel, Grand Junction, Col.* Eye, Ear, Nose and Throat Monthly 28: 265-69, June 1949.

In two cases of pharyngo-esophageal diverticula, successful results were obtained in the first by a two-stage operation, i.e., upward dislocation of the sac and later resection, and in the second case by dislocation of the sac alone.

In both cases, the dislocation of the sac alone resulted in clinically symptom-free swallowing. The author therefore recommends simple dislocation of the sac as the proper treatment for all cases of diverticula of small and medium size in which primary wound closure over the dislocated sac is possible. Some larger diverticula may also be treated in this manner. The local pathology and the general condition of the patient will be the determining factors. Upward dislocation of the sac is safe at any age and in any condition. If clinical results are satisfactory, no further treatment is indicated. If not, resection can be done. A four-year follow-up of the first case shows a tendency toward reformation of the sac in the old site, but the small new sac was dislocated upward and caused no symptoms. Since radical resection will not prevent recurrence, and dislocation by itself suffices to relieve clinical symptoms, dislocation is recommended as the treatment of choice.

The sac is exposed through an incision along the anterior border of the left sternomastoid muscle after dividing the omohyoid muscle, medial retraction of the thyroid gland and lateral displacement of the large vessels. The sac then descends into the mediastinum beneath the inferior thyroid artery, which is tied and severed. The sac is then liberated from fibers of the cricopharyngeus muscle and adhesions and is dislocated upward and fixed with three black silk sutures to the uppermost fibers of the sternohyoid muscle. The mediastinum is packed lightly with iodoform gauze and the skin wound closed over it. The pack is removed on the seventh day. Following this procedure in one case reported, the patient ate normally without regurgitation, noises or other abnormal symptoms. In 6 weeks he gained 15 pounds. 5 references. 2 figures.

Pharyngo-Esophageal Diverticulectomy. Advantages of the Two-Stage Operation for Large Pulsion Diverticula. *Alexander Blain III, Detroit, Mich.* *Alexander Blain Hosp. Bull.* 8: 57-68, May 1949.

It is possible to remove pharyngo-esophageal pulsion diverticula in one stage unless they progress to a very large size. In the larger diverticula, the two-stage procedure is the operation of choice because of the danger of infection spreading through the fascial planes of the neck and mediastinum. The two-stage operation permits walling off of these spaces by fibrinous exudate. The pathology of pulsion diverticula is discussed. Recently, Lahey reported 209 cases of pharyngo-esophageal diverticula with only 2 deaths. In all of his cases the two-stage operation was employed. The present writer employed the technic described by Lahey, with the exception that he prefers intratracheal ether to intratracheal ethylene anesthesia. Two cases are reported in detail, the first in a man of 66 years with a diverticulum of stage 2, according to Lahey's classification, and another case in a man of 60 years with a stage 3 diverticulum. Good results were obtained in both cases. Various methods for suturing in closing the sac have been recommended. In one case, the author used a transverse closure with a continuous fine intestinal catgut suture over and over, followed by a row of interrupted silk sutures in the submucosa. 8 figures. 17 references.

Tracheotomy in Poliomyelitis Simplified with New Respirator. *R. L. Peterson and R. C. Ward, Boise, Idaho. Arch. Otolaryng. 48: 156-58, Aug. 1948.*

The lifesaving effect of tracheotomies on certain types of poliomyelitis patients has been well established. Tracheotomies that have been performed on patients with severe respiratory paralysis, in conventional type tank respirators, have been difficult. The established technic has been to open the respirator, to give the patient artificial respiration if necessary, and to do a tracheotomy as rapidly as possible. In the authors' experience in the Idaho epidemic and also in data reported from other epidemics, this technic has been carried out with considerable difficulty and sometimes has resulted in severe anoxemia and cardiac strain for the patient. After tracheotomy, considerable difficulty has been encountered in the care of the tracheotomized patient in the tank type respirator. Previous so-called lung respirators have not been practical for tracheotomy, because of the tight fitting collar.

A new respirator of this type has been developed by J. J. Monaghan of Denver. This respirator does away entirely with the neck piece. It in no way interferes with the technic of regular tracheotomy done over a properly placed bronchoscope. The head is freely movable and postoperative care is simplified. It has been the authors' privilege to use this new type respirator and in their hands, it has greatly simplified the operation of tracheotomy on respirator cases. 4 references. 1 figure.—*Author's abstract.*

Pharyngeal Neuralgia of Unusual Etiology (*Névralgie pharyngée de cause rare*). *M. Brémond and A. G. Brémond, Marseilles, France. Ann. d'oto-laryng. 65: 512-13, Aug.-Sept. 1948.*

In the case reported the patient was a woman 42 years of age, who for four or five years had pain in the left side of the pharynx in the region of the tonsil. This became increasingly severe and more constant, with radiation toward the ear, the maxilla, and the submaxillary region on the same side. Examination showed the left tonsil slightly enlarged; a hard body that could not be clearly defined was palpated when the palpating finger depressed the anterior wall of the tonsil bed; palpation of this body caused pain with typical location. At operation a portion of the stylohyoid ligament that had undergone ossification was removed; bleeding was slight. The pain was completely relieved after operation. In man complete ossification of the hyoid apparatus is very rare. In the case reported there was an incomplete ossification of the stylohyoid ligament, and this must have occurred late, as indicated by the patient's age when first symptom developed.

Radium Irradiation of the Nasopharynx for Hypertrophy of Lymphoid Tissue. *B. H. Minchew and B. E. Collins, Waycross, Ga. J. M. A. Georgia 37: 439-42, Dec. 1948.*

Tonsillectomy and adenoidectomy should precede irradiation treatment. When, after this surgery has been performed, the hearing troubles continue, radium or röntgen therapy must be considered. The audiogram is not con-

clusive in selecting the patient for irradiation. The early cases show a relatively flat curve of tone loss, with greater loss for high tones. Tuning fork tests should indicate good bone conduction and the Rinne test should be negative.

The authors have confined their work to the beta irradiations of radium. The usual applicator with 0.3 mm. of monel metal contains 50 mg. of anhydrous radium sulfate and emits approximately 75% of beta rays. This produces approximately 2860 r. at 1 mm. depth of lymphoid tissue when left in place for 12 1/2 minutes. The usual course is 4 treatments, each about 2 weeks apart. An observation period of 4 to 6 months should follow the last treatment. The treatment should be put off if the patient has a head cold.

The patient is placed supine on a cot and an astringent—or, on occasion, local anesthesia—precedes the insertion of the applicator into the nostril. If two applicators are available, both may be used concurrently. The instrument is passed back to the posterior pharyngeal wall and then withdrawn anteriorly for 2 or 3 mm. The handle is then turned toward the opposite side of the nose so as to bring the radium capsule as close as possible to the Eustachian tube. The maximum irradiation comes from the sides of the capsule, not from the ends. Adhesive plaster will hold the applicator in place. The therapist should remain at least 25 feet away during the period of treatment.

In the authors' practice, 18 cases with hearing impairment caused by lymphoid hypertrophy obstructing the Eustachian tube have received full treatment during the past year, of which 66% have been improved more than 15 db. 23 references.

Effect of Streptomycin Therapy on the Bacterial Flora of the Throat.
C. Phillip Miller and Marjorie Bohnhoff, University of Chicago School of Medicine, Chicago, Ill. Am. J. Med. 6: 417-23, April 1949.

Several investigators have found that bacteria can develop resistance to streptomycin rapidly when grown in culture media containing streptomycin as well as during streptomycin therapy in man. In culture media two types of organisms that have the ability to grow in high concentrations of streptomycin are distinguished: type A, the usual type of streptomycin-resistant organism, which can also grow in media not containing streptomycin; and type B, the streptomycin-dependent type, which requires streptomycin for growth. As the type B variants were demonstrated at first only in artificial culture media, the question arose whether these variants also occur in nature. A search for type B variants has therefore been made in experimental animals and in man.

In normal mice and rabbits given large doses of streptomycin twice a day for varying periods up to three weeks, none of the animals showed any ill effects. From time to time, animals were killed and cultures made from the pharynx, large bowel, spleen and heart's blood in media containing 400 micrograms of streptomycin per cc. Cultures from the large bowel and the pharynx contained both streptomycin-resistant and streptomycin-dependent organisms, the latter in small percentage. The heart's blood and spleen

cultures were negative. The varieties of micro-organisms found in the bowel and pharynx were the same as in normal animals except that there was an usually high percentage of yeasts. Cultures were made from the pharynx of two series of patients undergoing streptomycin therapy for tuberculosis or other diseases. In the first group the dosage of streptomycin was 1 Gm. or more daily. In this series of 61 patients, cultures on streptomycin-containing media became positive in all but 1 case. Not all these patients were followed from the beginning, but for 24 patients who were followed from the beginning, cultures of streptomycin-resistant organisms became positive by the thirteenth day. By further tests on control media, it was found that some of the organisms were streptomycin-dependent in two-fifths of these patients. The bacteria recovered from cultures on streptomycin-containing media were for the most part representative of the normal flora of the human throat, but, as in the experimental animals, there was a higher incidence of yeasts or yeast-like fungi. In the second series of patients receiving smaller doses of streptomycin (0.5 to 0.75 Gm. daily), a much smaller percentage of cultures on streptomycin-containing media became positive in the first two weeks of treatment, but the percentage increased in patients receiving streptomycin for longer periods. Among 70 patients not receiving streptomycin, 7 cultures contained some streptomycin-resistant organisms, 3 of which consisted entirely of yeasts. Of 157 members of the staff, student body, laboratory and clerical personnel, only 6 showed positive cultures on streptomycin-containing media, an incidence of 4%. Of 99 members of the ward personnel—nurses and attendants—21 showed positive cultures of streptomycin-resistant organisms, an incidence of 21%; the 4 who showed the heaviest growth of streptomycin-resistant organisms were nurses who were at that time caring for patients receiving streptomycin; streptomycin-dependent organisms were recovered from 3 of these 4 nurses. 11 references. 3 figures.

Experimental Tracheal Stenosis. Changes in Intratracheal Pressure in Stenosis at Different Levels (*Sulle stenosis sperimentali della trachea: Modificazioni della pressione intratracheale in stenosis ad altezza diversa*). Giovanni Gardenghi and Fabio Giaccai, *Clinica otolaringologica dell'Universita di Firenze*. *Oto-rino-laringol. italiana* 17: 352-58, 1948.

Whereas it has frequently been reported that the most serious tracheal stenoses are those situated high up in the trachea, the authors have observed that electrocardiographic and blood changes are more marked in stenoses at a lower level. They therefore conducted experiments on 9 dogs to demonstrate the changes in intratracheal pressure occurring in stenoses at different levels. The dogs were anesthetized with rectal chloral hydrate and the trachea was exposed through a median incision and following retraction of the pretracheal muscles. One cannula was then introduced right below the cricoid and another between the twentieth and twenty-first tracheal rings. The demonstration of greater changes in inspiratory and expiratory pressure in the low stenoses confirmed their assumption that low stenosis is a more serious condition than stenosis at a higher level. 14 references.

3. Tonsils

Allergy and the Tonsil Problem in Children. *Norman W. Klein, Seattle, Wash. Ann. Allergy 7: 329-33, May-June, 1949.*

The author believes that in the majority of cases in which pre-operative symptoms persist following tonsillectomy, and in which the lymphoid tissue begins to grow afresh after removal of the tonsils and adenoids, allergic conditions may be responsible. He stresses the importance of differentiating between infectious and allergic colds. In the latter mouth breathing and intermittent congestion are prominent features. Tonsillectomy will yield only temporary relief of symptoms if allergic factors are present. The indications for tonsillectomy and adenoidectomy are the same in allergic and non-allergic children.

However, operation may be avoided altogether, or at least a more successful outcome of operation may be insured, by careful evaluation of allergic symptoms and their conscientious treatment before proceeding to surgical treatment. The demonstration of an excess of eosinophiles in nasal smears may be used as a reliable indication of allergic disease. Surgery on the tonsils or adenoids during the pollen season in patients suffering from pollinosis may aggravate the latter and precipitate asthma. In a series of 136 cases of tonsillectomy and adenoidectomy in children, in whom the presence of an allergic condition was recognized and was treated before operation, regrowth of lymphoid tissue occurred in only 4 cases. In 60 cases in which allergic disease remained undetected and untreated prior to operation, regrowth of the lymphoid tissue following tonsillectomy and adenoidectomy occurred in 14 cases. 11 references. 1 table.

Factors Causing Delay in the Diagnosis of Lymphoblastoma. *Joseph G. Schoolman and Henry A. Siegal, University of Illinois and Mt. Sinai Hospital, Chicago, Ill. Ann. Otol., Rhin. & Laryng. 58: 243-48, March 1949.*

While it is well to seek a common denominator for all tissue variations, the presence of multiple disease entities, concurrently and successively, is not unusual and must be kept in mind. An example of such multiple pathology presented itself in a case in which lymphoblastoma of the left tonsil followed gynecologic disease which required surgery. A 54 year old female with a mild hypertension and a slightly enlarged heart had a gynecologic operation for benign pelvic pathology in December, 1946. Early in January of 1947, cervical nodes were noted by the patient. Although she was under competent medical care, and a clinical impression of malignancy was indicated on February 7, a clinical diagnosis of lymphoblastoma of the left tonsil was not made until February 28 nor confirmed until March 3. The interval between the appearance of the cervical nodes and the diagnosis was too long, despite several factors which tended to obscure the picture: the immediately preceding gynecologic surgery, a possible generalized lymphadenopathy and a benign biopsy. The tonsillar asymmetry was small enough to escape the attention of the first examiners. The discovery of the primary lesion was most important from a therapeutic standpoint. 0 references.—*Author's abstract.*

BRONCHOLOGY

Haemangioma of the Trachea in an Infant. Successful Removal. *H. S. Sharp, London, England. J. Laryng. & Otol. 63: 413-14, July 1949.*

Examination showed this 5 months old female infant to have an hemangioma on the posterior and right lateral walls of the upper third of the trachea. Removal of the tumor brought brisk bleeding. In the upper third of the trachea the tracheal mucosa had to be sacrificed for at least half its circumference and the diathermy button was required to stop persistent oozing. Recovery was normal and while the tracheotomy tube was in place the child breathed comfortably.

About two weeks postoperatively laryngoscopy and bronchoscopy were repeated. Since no evidence of tracheal obstruction was found, the tube was removed and the tracheotomy opening closed. At this examination there was found to be a definite diminution of movement of the right vocal cord, thought to be the result of damage to the right recurrent nerve from use of the diathermy button, but full restoration of movement is expected later. Although the diathermy button was used with great caution, the trachea in a child of this age is so soft that undue heating in the area of the nerve probably occurred. Despite the amount of destruction of tracheal mucosa necessary for the proper removal of the tumor, there has been no granulation formation or stenosis.

The specimen measured 1.5×0.5 cm. and the clinical diagnosis of hemangioma was confirmed by histologic examination. 1 figure.

Aerosol Antibiotic Therapy in Suppurative Diseases of the Lung and Bronchi. *B. P. Potter, B. S. Pollak Hospital for Chest Diseases, Jersey City, N. J. Dis. of Chest 15: 436-48, April 1949.*

This paper deals with a study of 46 cases of bronchopulmonary supuration treated by aerosolized antibiotics. The antibiotics used were penicillin and streptomycin. While the report is limited to results obtained in suppurative diseases of the lung and bronchi, it is stressed that infectious asthma, pneumonia, laryngotracheobronchitis and pulmonary emphysema associated with infectious bronchitis or bronchiectasis were also thus treated. However, the number of patients in the latter group was too small to warrant final evaluation.

It is pointed out that the extensiveness of the inner surface of the lungs creates effects obtained by inhalation similar to those of intravenous injection. The work of Bryson and Barach and their associates demonstrating in the experimental animal and in humans that a more uniform blood level of penicillin can be maintained by the inhalation method than by intermittent intravenous or intramuscular injections, is offered as confirmatory evidence. Furthermore, evidence is given that in some instances aerosolization of antibiotics will effect improvement in bronchopulmonary supuration when other methods fail. By this method high local or topical concentration is made possible.

That penicillin is absorbed is indicated by the detection of the drug in the blood and urine after its administration. However, the blood level is not necessarily a measure of its topical effectiveness. The use of detergents in conjunction with penicillin or streptomycin aerosol enhances their bacteriostatic effect. Penicillin and/or streptomycin aerosol therapy usually brings about appreciable clinical and anatomic improvement and therapy minimizes the operative risk in patients able to meet requirements for excisional surgery. In non-operative cases of bronchiectasis attained improvement may be maintained for months or longer, although recurrences are frequent. Favorable responses to aerosolization may be repeatedly obtained. With the use of antibiotics, surgical drainage is no longer an emergency in lung abscess. Because bronchiectasis not infrequently complicates lung abscess, extirpation of the involved lung segment is favored. Whether the number of lung abscesses which heal spontaneously has increased cannot be stated unequivocally at this time.

Antibiotics by nebulization are more convenient for the patient and their effectiveness equal, and in some instances more definite, than parenteral administration. The following two tables show the results in 46 cases. 14 references. 2 tables. 16 figures.—*Author's abstract.*

The Treatment of Status Asthmaticus with Intravenous Ethyl Alcohol.
John D. Gillaspie, Boulder, Colo. Rocky Mt. Med. J. 46: 547-49, July, 1949.

Intravenous alcohol may prove to be the procedure of choice in the treatment of status asthmaticus. A case is presented showing the result of its use in one instance. A patient, admitted to the hospital in severe status asthmaticus, was given intravenous aminophyllin and penicillin. Severe symptoms continued and later he was given 0.5 gr. aminophyllin in 5% glucose saline solution intravenously. An hour later he was unconscious, but pulse and respiration rates were regular. Examination of the solution revealed an inadvertent substitution of 5% alcohol in 5% glucose for the glucose solution. The patient slept five hours. When symptoms recurred the following day, intravenous alcohol, 5% in glucose, with 0.5 gr. aminophyllin was repeated. Relief of symptoms followed, and on the third hospital day the patient was symptom-free.

No record was found in the literature of this treatment for status asthmaticus, but Behan (1945) reported the use of intravenous alcohol in 30 patients as a postoperative sedative. Two patients did not sleep, 8 slept intermittently, and 20 slept well. Verkovskyaya (1945) reported the use of intravenous alcohol as a general anesthetic in 30 cases of bone surgery.

The solution should be given at a rate of 100 to 120 drops per minute, so that 100 cc. is given during the first ten minutes. The rate can then be reduced to 80 to 100 drops per minute, depending upon the reaction. Epinephrine, 1 cc. of 1-1000 solution, or aminophyllin, may be added. Over

a period of eighteen months, intravenous alcohol, in combination with aminophyllin or epinephrine, was used in 7 patients 20 times with excellent results in 6 patients. One suffered nausea, vomiting, and headache, with only slight relief of the asthma. 7 references.

New Trends in the Treatment of Bronchial Asthma. *George L. Waldbott, Detroit, Mich.* M. Clin. North America 33: 411-25, March 1949.

There is evidence that an asthmatic attack is a defense reaction designed to ward off and render innocuous harmful antigens similar to an infectious process which localizes and neutralizes harmful bacteria. Where this defense is lacking, human anaphylactic shock (formerly called "thymic death") is likely to occur. This results from inhalation, ingestion and injection of antigens to which excessive sensitivity exists. Treatment of asthma should therefore be directed not only toward control of symptoms, but also to interfering as little as possible with the natural mechanism of the defense reaction. In asthma, four situations arise, each of which requires a different therapeutic approach:

1. For the emergency, large doses of epinephrine, intravenous aminophyllin and antihistaminics are the method of choice. The most common causes of emergencies are ingestion of salicylates, of such foods as fish, nuts, cottonseed; inhalation of animal hair, of dusts from organic and non-organic chemicals; therapeutic injections of biologicals.

2. In treating the chronic asthmatic state the following facts should be taken into account: Chronic asthma is usually initiated at, or shortly after, the pollen seasons. Food is a minor factor, except when gastro-intestinal symptoms are present and in early childhood. Cessation of symptoms following administration of certain measures does not indicate that this measure is responsible for the so-called cure. Prolonged use of any drug is likely to aggravate asthma; its discontinuance may lead to the patient's improvement. The principal measures to control chronic asthma are eliminative procedures, short interval hyposensitization, control of infection (antibiotics) and such medications as epinephrine, aminophyllin, antihistaminics, and iodides, which relieve bronchospasm, increase expectoration, and thus eliminate antigenic material from the bronchial tree. Routine and persistent administration of antihistaminics is as harmful as that of other drugs. Oxygen, carbon dioxide and helium may relieve dyspnea but occasionally increase the patient's symptoms. Counteracting dehydration by large amounts of fluids, glucose and amino acids as well as by giving blood plasma are advocated. Bronchoscopic lavage is probably the most effective means to arrest chronic asthma.

3. For the state of rehabilitation, it is necessary to discontinue or reverse many measures which had been previously useful in order to prevent a psychosomatic aggravation of the disease. High caloric diets are indicated in order to improve the patient's nutritional state. Systematic exposure to inhalant antigens, to which the patient had been sensitive before, tends to

adjust his tolerance to normal surroundings. The threshold of tolerance to effort is improved by light exercise, gradually increasing in scope. In order to counteract the effect of sudden temperature changes he should gradually build up his tolerance to cold by sponging legs, arms and later the whole body surface with cold water and applications of ice. A change of climate should not be advocated unless a thorough analysis of the prospective climate is made. This "last resort" in the patient's management will lead to despondency and despair if not successful.

4. Complications of asthma require individualized treatment. The most common complication is pneumonitis which may be followed by fibrosis of the lungs or by segmental bronchiectasis. Massive generalized bronchiectasis as a complication of asthma is much less common than indicated by the literature. Subcutaneous emphysema, mediastinal emphysema, spontaneous pneumothorax, cystic degeneration of the lungs and spontaneous rib fractures occur as a result of severe coughing spells. Convulsion in children, or sudden syncope lasting for a few seconds in adults are due to anoxemia. 10 references. 2 tables. 3 figures (2 graphs).—*Author's abstract.*

Treatment of Paroxysm of Bronchial Asthma with Succinic Acid. (*Tratamiento de las crisis de asma bronquial con le acido succinico*). Leopoldo Herraiz Ballestro and Oscar Hauviller, Hospital Rivadavia, Servicio de enfermedades alergicas. Prensa méd argent. 36: 1059-65, June 10, 1949.

The immediate effect of intravenous administration of 50 mg. of succinic acid on the respiratory volume per minute and on vital capacity as demonstrated by Castex and his coworkers in 1948 suggested that it might have a favorable effect on the paroxysms of asthma. Results indicated that this effect manifested itself in improvement of the general condition and subjective symptoms and a higher oxygen saturation of the blood. The improvement lasted for a day or more following the injection.

In two groups of patients, the authors studied the results of intravenous and intramuscular administration of succinic acid. Injection of 50 to 150 mg. intravenously in one group yielded good subjective results in 17 of 21 cases; in 17 cases the bronchi were reduced or gone. Dyspnea disappeared in most cases 1 hour after the injection. In 14 cases the beneficial effect persisted for 12 to 48 hours, but began to diminish after 3 hours. In 4 cases the effect was prolonged by repeating the injection every 2 or 3 hours. In 4 cases there was no improvement. In the second group of cases the remedy was administered by intramuscular injection, which was found to have the same beneficial effect and was less annoying to the patient. The injection consisted of 1 to 3 cc. of a 5% solution of succinic acid.

The author draws attention to the fact that in patients with severe dyspnea, this treatment may cause transitory exacerbation with cough, increased respiratory rate, tachycardia and increased dyspnea. In some cases the symptoms were sufficient to cause alarm with cold sweats, drawn faces and a sensation of impending asphyxia. These symptoms recur following

each injection, but are less marked, and are not so severe following the intramuscular injection. This effect occurs only in cases with very severe dyspnea. Repeated smaller doses are preferable to one large single dose. An immediate effect was obtained in one-half of the patients. The dose may be repeated every 3 hours except in cases showing the paradoxical reaction described. The pulse rate returns to normal and the bronchi disappear, although the sibilants persist. 15 references. 1 table.

Lobectomy for Bronchiectasis. Some Reasons for Its Failure to Satisfy All Patients. *John F. Paterson, Sunnybrook Hospital, Toronto, Canada.* Treat. Serv. Bull., Ottawa, 3: 3-16, Dec. 1948.

A group of 38 patients who were partly or completely dissatisfied with results of their lobectomies for bronchiectasis is discussed. Four had a variable deep-seated ache or pain beneath the chest scar; 2 had developed pulmonary tuberculosis; 3 had required partial thoracoplasty for empyema following their lobectomy, 16 still had bronchiectasis, and 13 continued to have their preoperative cough. Of the 16 who still had bronchiectasis, 9 had residual lingular bronchiectasis after left lower lobectomy. Bronchograms showed this present before and after operation in 6, although it was the only segment involved. It was combined with postoperative bronchiectasis of the anterior segment of the left upper lobe in 1 case and with contralateral bronchiectasis in 2 cases. Residual right middle lobe bronchiectasis followed right lower lobectomy in 1 patient. Another had residual bronchiectasis of the anterior segment of the right upper lobe after right middle and lower lobectomy. Bronchograms showed the disease in the anterior segment to have been present before and after operation. There was residual contralateral bronchiectasis in 4 patients and bronchiectasis of the posterior sub-segment of the left apico-posterior segment in 1 case. Because of incomplete mapping, it was uncertain whether the latter was a residual bronchiectasis or had developed postoperatively. Its significance was undetermined. Generalized ronchi were found in the remaining 13 patients with recurrent coughing attacks. It is believed that they had recurrent bronchitis with their bronchiectasis. The only abnormality found in 2 of these 13 patients, however, was a long lobectomy stump.

These cases emphasize the importance of completely mapping the bronchial tree before lobectomy and of being sure that the lingular segment has been properly mapped and is free of disease before doing a left lower lobectomy. Patients should be warned when it is known that there will be residual bronchiectasis in the contralateral lung. Patients with both bronchiectasis and recurrent bronchitis should be warned that lobectomy will not cure the bronchitis. Regardless of such complaints, lobectomy has been established as having a low mortality and being a satisfactory treatment for bronchiectasis. The mortality in 250 lobectomies was only 0.82%. 2 references. 13 figures.

Bronchiectasis. Its Curative Treatment by Pulmonary Resection. An Analysis of Ninety-Six Cases. *Alton Ochsner, Michael De Bakey and Paul T. DeCamp, Tulane University of Louisiana School of Medicine and Ochsner Clinic, New Orleans, La.* Surgery 25: 518-52, April 1949.

Bronchiectasis vies with tuberculosis as the most common chronic pulmonary disease. An analysis of 96 cases in which 105 pulmonary resections were performed indicates that this treatment is not hazardous and gives satisfactory results in a high proportion of selected cases. The disease is chiefly one of young people and frequently runs a chronic course beginning early in life, persisting and growing more severe until definite surgical treatment is employed. Conservative measures can palliate the condition but will not cure it when once established. Onset of the illness was dated from an acute pulmonary infection in over 50% of the cases. In approximately one-fourth of the cases the onset was insidious. Early in the course of the disease it may well be reversible. Usually, however, when seen clinically, the pathologic changes are fixed. Cough and expectoration are the most frequent early symptoms. Hemoptysis and recurrent respiratory infections are common. Advanced symptoms of foul sputum and clubbing of the fingers are relatively rare. Physical signs and the appearance of the chest x-ray usually reveal only minor changes. It is essential to establish the diagnosis and the extent of the disease by means of complete bronchographic mapping of both lungs. Symptomatic ectasia without too extensive involvement of the lungs indicates pulmonary resection.

In the author's series, bilateral operations were performed in 5 instances. Pneumonectomy was performed in 15% of the cases. In an additional 75% of the cases, inferior portions of the lungs were resected. Individual hilar dissection has been practiced in all operations since 1942, with segmental resections performed in approximately one-third of the instances. Hospital mortality prior to 1942 was 46%, and since that time no hospital deaths have occurred in 83 cases resected. There have been 5 subsequent deaths, of which 3 were related to pulmonary disease. End results indicate that 66.8% of the patients are completely cured or have only minor symptoms; 12.5% are improved, but have moderate symptoms; 6.2% show unsatisfactory results; 11.4% have died; and 3.1% were not followed. Prompt postoperative reexpansion of remaining pulmonary tissue is felt to be the most important preventive of postoperative pulmonary and pleural complications. Dissection technic with individual ligation of the structures is essential. In the past two years the median postoperative morbidity (99.6°F.) has been five days and the median postoperative hospital stay has been ten days. Incidence of postoperative pneumonia is now 2.4%, of empyema 15.1% and of bronchial fistula 6%. It is thus apparent that bronchiectasis can be treated by pulmonary resection with a high degree of success in properly selected cases. 14 references. 13 figures (graphs). 3 tables.—*Author's abstract.*

Etiopathogenesis of Bronchiectasis. Functional Stenosis. (*Etiopatogenia de la bronquiectasia. La estenosis funcional.*) S. Di Rienzo, Cordoba, Argentina. Prensa méd. argent. 36: 999-1009, June 3, 1949.

Following a brief review of the theories of the pathogenesis of bronchiectasis, including that of infection and functional or organic stenosis, the author discusses at length the theory of functional stenosis. The latter is attributed to hypertension of the functional sphincter at the root of the bronchial rami. This sphincter is controlled by the nerves of the extrachondral plexus, the subchondral plexus and subepithelial plexus. The extrachondral plexus is derived from the sympathetic and the subchondral and subepithelial plexuses from the inferior branch of the pneumogastric. In whooping cough and allergic conditions, hypersensibility of the nerves and congestion of the mucosa stimulate and multiply the effects of hypertension of this functional sphincter. A vicious neurovascular-infectious circle is thus formed.

Attention is drawn to roentgenologic evidence that cough is not a simple act of expulsive hyperpressure, but a dynamic act of the mucosal layer in peristaltic motion having its origin in the finer bronchi and terminating in the vocal cords, in unison with activity of the functional sphincters. The air is thus expelled like a foreign body, by an intentional and intelligent defense mechanism of the bronchopulmonary system, possibly accompanied by a vascular syndrome with ejaculation of blood toward the central cavity. Organic and functional stenosis caused by foreign bodies serves as an experimental demonstration of the importance of this mechanism in the pathogenesis of bronchiectasis. It is not only the actual presence of the foreign body, but the primary or secondary irritation which causes spasm of the mucosa. Occasionally atelectasis follows initial emphysema. For roentgenologic demonstration of the latter, exposure must be made in the final moment of expiration.

Among the extrabronchial compressions leading to bronchiectasis are adenitis, tumor, aneurysm and hydatid cysts. Infection either in evolutionary or cicatricial stages will cause irritation of the endobronchial nerve ends with resulting hypersecretion and obstruction. Ulcerovegetative infections, tuberculosis, syphilis or mycosis may have this effect. Infection may develop secondary to obstruction, and cause bronchitis but not dilatation. Ectasia is due to the dynamic action exerted by transitory but repeated and energetic hyperpressure of the column of air. Adjuvant causes are frequently present and the interaction of diverse factors may be involved, but obstruction, whether primary or secondary, plays only a directing role. 18 figures.

A Case of Bronchial Adenoma Without Signs of Bronchial Obstruction, Concomitant with Minimal Pulmonary Tuberculosis. *Gilbert H. Fletcher, Capt., M.C., A. U. S., and Marion S. Lombard, Marine Hospital, Pittsburgh, U. S. P. H. Service.* *Am. J. Roentgenol.* 61: 209-11, Feb. 1949.

A 46 year old white female complained of weight loss, chronic cough with yellowish sputum, night sweats, chest pain, and one hemoptysis. Stereoscopic films showed small, circumscribed, partially calcified areas of infiltration in the periphery of the second left interspace. The lesion was apparently arrested. Repeated sputum examinations were negative, and serial x-rays showed no change. The patient felt essentially the same and continued to have occasional blood-streaked sputum.

In a film taken six months later there was an area of infiltration 1.5 cm. in diameter seen about 5 cm. under the right hilum and partially overlapped by the cardiac border. On the right lateral view the infiltration was thought to be below the hilum back to the fissure between the right middle and right lower lobes. Neither lobe showed evidence of obstructive emphysema, atelectasis, bronchiectasis, or chronic pneumonitis. A review of previous films showed that the infiltration had been present before and had not changed. The possibility of a tumor and of a nodular tuberculous infiltration was considered. At this time the patient ran a slight afternoon temperature with symptoms in the right upper quadrant. A tuberculin test was mildly positive. No change occurred in either the minimal infiltration of the second left interspace or the nodular infiltration.

The patient was bronchoscoped. About 3 inches from the carina the right lower lobe bronchus was narrowed; in front of the bronchoscope there was a round mass which bled easily. A biopsy was taken from the mass with a subsequent diagnosis of a bronchial adenoma. A right lower and right middle lobectomy was done. Between the bronchus and the large vessel in the hilar region there was a lobulated tumor mass about 1.5 cm. in diameter. There was infiltration of the bronchial wall at the division of the right lower and right middle lobe bronchi. The pathologic diagnosis was adenoma of the bronchus.

Polypoid tumors of the bronchi produce bronchial irritation, obstruction, and bleeding. These features explain the clinical and roentgenologic findings. Consequences of increasing obstruction are the predominant components of bronchial adenoma. 4 references. 2 figures.

Diagnosis of Bronchogenic Carcinoma by Cytologic Methods. *Seymour M. Farber, Mortimer A. Benioff, and Allen K. McGrath, San Francisco, Calif.* *Radiology* 52: 511-18, April 1949.

The authors' experience with cytologic diagnosis in 100 proved cases of bronchogenic carcinoma indicates that it is a valuable diagnostic aid. Microscopic particles of expectorated malignant tissue from the lungs were recognized as early as 1887 in unstained smears. Two useful "wet film"

technics for cytologic diagnosis have been developed: one by Papanicolaou and Traut in the United States; the other by Dudgeon and Wrigley in England. Excellent results have been reported by both methods. However, the authors have used the Papanicolaou and Traut method.

Material was obtained from university hospitals, general private hospitals, tuberculosis sanatoriums and private physicians, rather than from special cancer hospitals. The patients were suffering from undiagnosed chest disease or were suspected of having carcinoma of the lung. Sputum was obtained by deep coughing and bronchial secretions by aspiration from suspected areas of the bronchial tree. After suitable preparation and staining, the smears were systematically screened by trained technicians. Unusual cells were marked and examined by physicians experienced in cytologic diagnosis. These physicians had no knowledge of the clinical information on the patient. It was found necessary to examine at least three slides from each of five daily specimens before the cytologic examination could be considered adequate.

Criteria for identification of exfoliated cells were developed by comparing direct smears of normal tissue, direct smears of tumor tissue, and histologic sections with cells in sputum from known non-malignant pulmonary disease, as well as proved carcinoma of the lung. Malignant cells must be differentiated from the atypical non-malignant sputum elements which include squamous and columnar epithelium, metaplastic cells, blood elements and histiocytes and macrophages. Malignant cells may include large cell size, high nucleus to cytoplasm ratio, irregularity of nuclei, chromatin aberrations, abnormal nucleoli, crowding, and variation in maturation. Six cases in which this cytologic technic was useful are reported. In each case the roentgenographic picture was confusing.

In this series, 2,228 specimens of sputum or of secretions obtained bronchoscopically, representing 671 cases, have been submitted to cytologic study. Of these 671 cases, 100 have been proved to be cancer of the lung. Sputum from 89 of the 100 proved cases was examined and cells "consistent with malignancy" or "suspicious" were found in 63, or 71%. Bronchoscopically obtained secretions from 45 proved cases were examined and positive findings were reported in 26 (58%). When a complete series of five sputum specimens was studied, the accuracy of cytologic diagnosis was increased to 90% (63 of 69 proved cases). In 20 of the 26 proved cases missed by sputum examination, the number of specimens examined was inadequate. In 12 cases a single specimen was submitted. In one case a false "suspicious" report was rendered during the early phase of the work.

When sputum and bronchoscopically obtained smears from the same case have been examined, the accuracy has been comparable. The relative ease with which sputum smears may be prepared makes this diagnostic procedure available where adequate diagnostic facilities, such as bronchoscopy, are lacking. It must be emphasized that this technic has definite limitations. Further evaluation under rigid investigative control is necessary. 17 references. 14 figures.—*Author's abstract.*

The Pathology of Carcinoma of the Bronchus. *Oscar Auerbach, Staten Island, N. Y.* New York State J. Med. 49: 900-907, April 15, 1949.

Carcinoma of the bronchus is found in about 1% of all autopsies and in about 8% of all deaths from carcinoma. A review of the literature makes it appear that much of the increase in bronchial carcinoma is apparent. How much is real will probably never be known.

There are 50 autopsies of carcinoma of the lung in this series; 92.5% are men, 7.5% are women, 85% are in whites and 15% in Negroes; the greatest number of cases are in the sixth and seventh decades of life. In 47 cases where a site could be determined, the right lung is involved in 25 and the left in 22 instances; the upper lobes are implicated more frequently than the lower.

On the basis of its gross appearance and sequelae, carcinoma of the bronchus is divided into three main groups: (1) hilar type arising in the main bronchi, (2) pulmonary type, arising in branch bronchi, and (3) peripheral type in which the origin within a bronchus is not found on gross examination. The hilar type, which comprises 32% of all the cases, is characterized by the carcinoma arising within the wall of the main bronchus. As the growth progresses in all directions, it results in a thickening of the wall and a narrowing of the lumen. In its outward progression it extends to and surrounds the adjoining mediastinal structures. The pulmonary type, which comprises 46% of all the cases, is characterized by the carcinoma arising in a branch bronchus. In its growth outward the tumor encloses the regional peribronchial lymph nodes and extends into surrounding lung parenchyma forming a large yellow mass. If necrosis and liquefaction supervene, a cavity may result. If the first order bronchus is affected, it may extend to the mediastinum, but this is never as extensive as in the hilar type. As a result of the narrowing of the bronchus, the bacteria retained within the lung give rise to bronchopneumonia, purulent bronchitis, lung abscess, bronchiectasis, pulmonary fibrosis and/or empyema if the abscess ruptures into the pleural space. These secondary changes dominate and often obscure the picture of the carcinoma of the bronchus. In the hilar type, the secondary changes are present in the entire lung and in the pulmonary type the changes are present only in the region peripheral to the involved bronchus. The peripheral type, which comprises 14% of the cases, lies in the peripheral portion of the lung and may extend to involve the overlying pleura and even the chest wall. In 3 cases there are distinct metastases.

Microscopically, all cases could be classified into one of three types: undifferentiated cell carcinoma, squamous cell carcinoma and adenocarcinoma. Two or three types are often found in the same case and sometimes in the same slide. Two of our cases fit the criteria of carcinoma pneumonia. One case is of multicentric origin in many of the bronchi and bronchioles of both lungs, and one case is that of microscopic carcinoma of a bronchiole with gross metastases. Metastases are present in all but one case and are the result of lymphatic and blood stream dissemination. The cases of adeno-

carcinoma metastasize outside the chest more frequently (75%) than undifferentiated cell carcinoma (57%), while squamous cell carcinoma only metastasizes in 17% of the cases. 70 references. 2 tables.—*Author's abstract.*

Carcinoma Cells in Sputum and Bronchial Secretions. A Study of 150 Consecutive Cases in which Results Were Positive. *Lewis B. Woolner and John R. McDonald, Mayo Clinic, Rochester, Minn. Surg., Gynec. & Obst.* 88: 273-90, March 1949.

The purpose of this study was the identification of cancer cells in sputum or bronchial secretions and evaluation of the smear technic as a routine procedure in the diagnosis of bronchogenic carcinoma. The technic employed was based on the original work of Dudgeon and Wrigley. Sputum was examined while fresh, or it was collected in a few cubic centimeters of 95% alcohol. Five smears were made from each specimen. The smears were fixed, while wet, in equal parts of absolute alcohol and ether for 30 minutes. The staining method adopted was Harris' hematoxylin followed by dilute eosin as a counterstain.

Smears of sputum or bronchial secretions from nonneoplastic diseases of the lung revealed squamous and ciliated columnar epithelial cells, macrophages, and various inflammatory cells. Carcinoma cells in smears could be distinguished from normal cells by numerous atypical characteristics, including large size, variation in size and shape of the cells and of the nucleus, the nuclear-cytoplasmic ration, hyperchromatism of the nucleus, and the presence of large nucleoli. The appearance of carcinoma cells in sputum and bronchial secretions varies with the histologic type of tumor in the bronchus. Cancer cells originating in a bronchogenic carcinoma of small cell "oat-cell" type or in a keratinizing squamous cell type provide the most distinctive morphologic characteristics. A diagnosis of the histologic type of tumor present was usually possible in the case of these two cell types. In most other bronchogenic carcinomas, especially the more undifferentiated tumors, a diagnosis of "carcinoma cells present" was made without reference to histologic type. Metastatic lesions of the lungs may be the source of carcinoma cells in sputum or bronchial secretions.

Analysis of 150 cases in which the smears were diagnosed positive for carcinoma cells was carried out. In 146 of these cases the source of the atypical cells was believed to be a tumor in the bronchial tree. In 141 of the 146 cases a final diagnosis of primary or metastatic carcinoma of the lung was made. In 3 cases diagnoses made on the basis of smears were proved to be false positive. In 2 cases the final diagnosis, whether inflammatory or neoplastic, was not definitely established. Carcinoma cells in sputum or bronchial secretions provided the only preoperative microscopic evidence of cancer in 25 (43%) of a total of 58 cases in this series in which surgical exploration was carried out. Of 24 cases of bronchogenic carcinoma in which the lesion could be removed, cancer cells in the smears provided the only microscopic evidence of cancer in 9 cases (37%). 24 references. 9 figures.—*Author's abstract.*

Bronchogenic Carcinoma. *David D. Feld and Valentine O'Malley, Milwaukee, Wis.* Dis. of Chest 15: 450-59, April 1949.

In an eleven year period at Mairdale Sanatorium, 47 cases of primary bronchogenic carcinoma were sent in as cases of pulmonary tuberculosis. Of these 35 were proved by postmortem examination, and biopsy, and 1 by the presence of tumor cells in the pleural fluid, and 12 cases were diagnosed on the basis of clinical, roentgenologic and bronchoscopic findings. Of the proved cases, 14 were squamous cell type, 14 undifferentiated-cell carcinoma, 3 adenocarcinoma and 1 alveolar cell carcinoma. Two cases could not be classified histologically. Two cases had both pulmonary tuberculosis and primary bronchogenic carcinoma.

The average age of our patients was 55.4 years. Our youngest patient was 40 years old and the oldest was 73 years of age. The ratio of male to female was 3 to 1.

The importance of early recognition of primary bronchogenic carcinoma is emphasized by the fact that only 4 of the 47 patients were considered operable at the time of diagnosis. The interval from diagnosis to death was only 3.8 months, while a period of 10.7 months elapsed from the onset of symptoms to diagnosis. Therefore, the total duration from the time of onset of symptoms to death was 14.5 months. The patient's delay in seeking medical advice was 6.4 months and the physician's delay in establishing the diagnosis was 4.3 months. These observations emphasize the necessity of the development of cancer consciousness both in the physician and the public.

The clinical picture of primary bronchogenic carcinoma is mainly respiratory in character; the prominent symptoms are cough, chest pain, hemoptysis, dyspnea. Weight loss was a constant finding. Fever and leukocytosis depend upon the presence of secondary pneumonitis. No significant anemia was noted in any of our cases.

The importance of tuberculin testing of adults is re-emphasized. Nine of our patients had a negative tuberculin test and should never have been considered as tuberculous. Seven of the 47 patients reported a positive sputum prior to entrance. Postmortem examination of 4 of these cases revealed active pulmonary tuberculosis and carcinoma grossly and microscopically in only 2. In the remaining cases, positive results could not be obtained after intensive studies of sputum and gastric content cultures. In view of these negative results, the outside findings should be viewed with skepticism. The differential cell count of the pleural fluid revealed a marked lymphocytosis in 3 cases. Lymphocytosis is considered typical of tuberculous pleurisy with effusion and in these cases could mislead one to an erroneous conclusion. One effusion contained 60% eosinophiles, although the patient did not manifest any evident allergy.

Clubbing of the fingers is not an unusual finding in bronchogenic carcinoma. The importance of roentgenograms, bronchoscopy, cytological examination of sputum and bronchial secretions and thoracotomy as diagnostic procedures are discussed. 17 references.—*Author's abstract.*

A Case of Acute Laryngo-Tracheo-Bronchitis. *I. S. Thomson, Aberdeen, Scotland. J. Laryng. & Otol. 63: 411-12, July 1949.*

In discussing the case of this infant, aged 14 months, the following points are felt to be of interest: The infant's weak cough and the anatomy of the infantile air passages are said to predispose to acute laryngo-tracheo-bronchitis. The symptoms may be brought on by any virulent infection and while other members of the family may develop symptoms of an infective respiratory epidemic (in this case the mother had had influenza and the father and elder brother had had pneumonia) the infant will suffer from acute laryngo-tracheo-bronchitis. Prior to the recording of this case, there appears to have been no report of a radiological demonstration of edema of the loose sub-glottic tissue. However, diagnostically, this examination is of secondary importance to laryngoscopy. The manner in which this critically ill child withstood the ordeal of frequent bronchoscopy is considered remarkable. 1 reference. 2 figures.

Endobronchial Occlusion During Pulmonary Resection. Preliminary Report. *James D. Moody, Duke University School of Medicine and Duke Hospital, Durham, N.C. J. Thoracic Surg. 18: 82-89, Feb. 1949.*

The methods of control of bronchial secretions during pulmonary resection fall into three general categories: preoperative preparatory procedures, including chemotherapy and postural drainage; operative measures such as tracheobronchial aspiration, mechanical blocking of the bronchi, and positioning of the patient with gravity drainage of the secretions; and post-operative therapeutic and preventive exercises including chemotherapy, enforced coughing, bronchoscopy, and deep breathing exercises. The success of these methods is discussed, as are several instruments previously designed for mechanically blocking the various bronchi. Since the problem of prevention of spreads seems unsolved, the author devised an endobronchial balloon which obstructs the diseased portion of lung. Aspiration distal to the balloon is also provided, thereby producing atelectasis of the obstructed lung. The balloon is held in place by a metal holding apparatus, the points of which engage the bronchial mucosa on dilatation of the balloon. Preliminary experimental animal work revealed that (1) no harmful effects were produced; (2) complete occlusion of the bronchus was obtained; (3) dislodgement during operation was very unlikely; (4) there was a wide margin of safety and (5) there was very little interference with anesthesia.

The instrument has been found to be indicated in any resection for suppurative pulmonary disease, including bronchiectasis, lung abscess, carcinoma with secondary suppuration and tuberculosis. The presence of bilateral disease, particularly bronchiectasis, does not constitute a contraindication. The presence of atelectasis in the affected lobe has been found to be a definite aid to the surgeon, particularly in the delineation of the interlobar fissure. In cases of tuberculosis, the presence of large amounts of hyperplastic tissue at the contemplated site of placement of the balloon constitutes a definite contraindication to its use.

During a 24 month period, 44 pulmonary resections were performed using the instrument for bronchial occlusion. In 33 of the cases, the instrument functioned satisfactorily as judged by complete bronchial occlusion, the production of atelectasis in the obstructed lobe or lobes, and the lack of a postoperative spread. Anesthesia has been definitely improved and, in general, the postoperative course of these patients has been smoother. Complications due to mistakes in technic of inserting the instrument occurred in 5 cases without evidence of postoperative spread. There were 6 cases in which spread occurred, in 3 of which the spread was due to a mistake in placement of the balloon. The remaining 3 were all cases of tuberculosis in whom streptomycin was not used; the drug was combined with the instrument in 9 cases and spread did not occur.

It is felt that with improvement in the technic of handling the instrument and thus eliminating the complications which have occurred in this series, the danger of spread during pulmonary resection in bronchiectasis, abscess and bronchiogenic carcinoma with secondary suppuration may well be obviated. The combined use of streptomycin and the endobronchial balloon in cases of tuberculosis may also minimize the possibility of spread during surgical resection in this disease. 3 references. 1 table. 5 figures.—*Author's abstract.*

Case of Rupture of Left Lower-lobe Bronchus with Recovery. *A. W. Fawcett. Brit. M. J. 1: 482, Mar. 19, 1949.*

A case of this rare condition is reported in a 24 year old man who had a motorcycle accident. He recovered rather rapidly from concussion, multiple abrasions and a broken arm but was readmitted two months later with a diagnosis of left lower-lobe pneumonia. He recovered but became ill a year later with rigor and pain in the left lower chest. A diagnosis of pneumonia was made but x-ray showed a collapsed left lower lobe. Bronchogram showed filling failure of the left lower lobe and bronchoscopy showed no evidence of entry to that lobe. Lobectomy showed that the left lower bronchus had been partly torn across and only had fibrous tissue on one wall. There still was some cartilage in continuity with the main left bronchus. It was unnecessary to suture the bronchus, as there was no passage between the lower lobe and the main bronchus. The left lower lobe was completely bronchiectatic and the bronchi were filled with albumin-like mucus. No pus was found in any bronchi and the infection had apparently subsided. The patient was discharged cured two weeks after operation. There were no fractured ribs in this case, the rupture apparently following compression of the chest by the motor-cycle falling upon it. 1 reference. 1 figure.

Death Following Bronchography. Report of a Case. *James A. Harrill and William B. Alsop, Bowman Gray School of Medicine, Winston-Salem, N. C. Ann. Otol., Rhin & Laryng. 57: 1088-98, Dec. 1948.*

The death of a 2 year old boy 45 minutes after the instillation of 10 cc. of iodochoral into the tracheobronchial tree is reported. The oil was instilled

through the light carrier channel of an infant bronchoscope. Chest films prior to the bronchoscopy revealed a non-specific pneumonitis in the right base. The child was afebrile two days prior to the procedure. There was a strong allergic history. Post mortem examination revealed edema and atelectasis of the lungs. There was perivascular infiltration of plasma cells and eosinophils. Death was thought to have resulted from an iodine sensitivity. A review of the literature disclosed several similar deaths following iodized oil studies. Certain precautions are listed and emergency measures are recommended. 13 references. 2 figures.—*Author's abstract.*

Contribution to the Technique of Bronchography in Adults. *L. Walk, University of Tartu, Estonia.* Am. J. Roentgenol. 61: 243-44, Feb. 1949.

A method for introducing a duodenal tube into the trachea for bronchography is described. The patient is placed in sitting position, leaning about 10 degrees forward. A duodenal tube is held between the second and third fingers of the left hand; these fingers with the tube are inserted into the pharynx, behind the epiglottis which can be readily palpated, and the epiglottis and tongue are pulled forward. The tube is thus held against the posterior surface of the epiglottis. The patient is requested to breathe deeply and with every inspiration the free right hand pushes the tube 1-2 cm. forward, the left fingers holding the tube being somewhat loosened for this. When the tube enters the trachea, it is felt falling loosely (which is not true if it enters the esophagus). If the attempt is unsuccessful, the patient leans more forward (up to 45 degrees). Entrance is performed in the dark to adapt the eyes for subsequent roentgenoscopy. Iodized oil is instilled under roentgenoscopic control. Before introducing the tube, the patient must fast; one-half hour before exploration morphine plus atropine is injected. The throat is anesthetized with soft cotton brushes; first the pharyngeal arches, the upper and then the lower areas of the piriform recesses are anesthetized, using pontocaine, 2%, to which 1 to 2 drops of adenalin per cc. have been added, the anesthetic spreading over the pharyngeal mucosa even where not touched by the brush. Three to four brushes usually suffice. It is not necessary to introduce a brush into the trachea; this would involve discomfort. Inspection of the larynx by a mirror follows, searching for vocal cord paresis. Then 2 cc. of anesthetic are injected into the trachea by a laryngeal syringe, which is held at the posterior surface of the epiglottis and is not inserted into the trachea. Under mirror control the injection is performed promptly during the inspiratory phase of deep breathing and causes expectoration. Instead of the first brushes, a spray may be employed for anesthesia. The tube may be inserted without dyspnea and insults of expectoration, even in unilateral vocal cord paralysis. 1 figure.

Delayed Pneumonia and Urticaria Following Bronchography. *H. E. Bass, New York Medical College, New York, N. Y.* *New England J. Med.* 240: 505-507, Mar. 31, 1949.

Pneumonia complicating bronchography has been attributed to the carrying down of infecting organisms from the upper respiratory tract, to obstruction of bronchi by iodized oil, or to an allergic reaction to the iodide component of lipiodol. A number of fatalities have also been reported which were considered to be due to allergy to iodide. A delayed type of pneumonia following bronchography is described which resembles the delayed reaction of serum sickness. The interval before symptoms appear may be from 7 to 14 days, and even longer. The symptoms resemble those of an acute pneumonia, with cough, expectoration and fever. Urticaria is seen frequently and is also delayed in appearance. Eosinophilia may be present. A confluent type of pneumonic density is found on x-ray examination, corresponding to the area of distribution of iodized oil. Treatment is symptomatic, although it is suggested that antihistaminic drugs be used. A history of personal or familial allergy is usually obtained in these cases, and sensitivity tests for iodine are frequently positive. However, a negative sensitivity test is no safeguard against the development of lipiodol pneumonia. An effort should be made to keep patients under observation for two weeks following bronchography in view of the delayed appearance of this type of pneumonia. 11 references. 3 figures.—*Author's abstract.*

Bronchography in Cases of Foreign Body. *Eelco Huizinga, Groningen, The Netherlands.* *Acta oto-laryng.* 37: 124-30, April 1949.

In those particularly difficult cases in which the foreign body itself causes no shadow on the photograph, bronchography will show whether a foreign body really is present, its exact location, and the presence of a particular complication. Several cases are discussed, one of which confirms the accuracy of Chevalier Jackson's advice that the possibility of a foreign body should always be considered in cases of obscure pulmonary disease. Bronchography is of particular value when a piece of a foreign body, the rest having been removed, finds its way into the deeper air passages. Bronchography also demonstrates the fact that occlusion of a side branch produces atelectasis only if the collateral ventilation fails. If a sharp object has pierced the bronchial wall and no acute signs exist, bronchography will reveal the condition. 7 figures.

Amethocaine Hydrochloride. Severe Toxic Effects when Used for Bronchoscopy. *C. A. Jackson, Hill End Hospital and Clinic, St. Albans, England.* *Brit. M. J.* 4593: 99-101, Jan. 15, 1949.

With the increase in use of Amethocaine Hydrochloride (Pontocaine) in Great Britain for surface analgesia, a report of two severe toxic reactions from its use in preparation for bronchoscopy draws attention to the need for careful dosage and technic of administration. A review of the literature is given, and comment is made that although the British medical press reveals

scanty information concerning toxic reaction, American and German journals report fatalities and severe constitutional disturbances at bronchoscopy and gastroscopy.

The nature of the reaction, similar to cocaine intoxication, is characterized by convulsions of an epileptiform nature, during which death may occur.

Amethocaine, known variously as pantocaine, pontocaine, anethaine, dikaine, tetracaine and decicain belongs to the para-amino-benzoyl group of anaesthetics, being introduced as "Decicain" by Bayers about 18 years ago. The advantages and disadvantages of this drug used as a surface analgesic are weighed. Two cases of severe toxic reaction are reported occurring during the preparation of two patients for bronchoscopy under local analgesia: that of a 62 year old man with superior mediastinal obstruction and that of a 21 year old boy with left lower lobe bronchiectasis. Convulsions developed in both cases. In the latter case, cardiac arrest occurred which failed to respond to restorative measures and direct cardiac massage had to be performed.

In commenting on these cases, it was pointed out that although both patients had received less than 90 mg. of Amethocaine solution, a violent reaction had resulted. As both patients were hyperventilating, a possible explanation of the reaction is suggested: rapid absorption of the drug may have occurred directly from the highly vascular surface of the pulmonary alveoli. The question of sensitivity has been reported upon by Thomas and Fenton (1943) who admit the difficulty and unreliability of a suitable sensitivity test.

The author is satisfied that by providing each patient with an Amethocaine pastille (65 mg.) to suck prior to bronchoscopy any idiosyncrasy possessed by the patient would be displayed. He also suggests:

1. A barbiturate should be administered in the preoperative preparation.
2. Use of a preliminary pastille.
3. Combination with adrenalin in surface application.
4. A dose of 80 mg. not be exceeded.
5. Avoid application by spray, for it is easy to administer an overdose.
6. The drug should never be applied to an inflamed, traumatised or highly vascular surface.
7. Avoidance of the drug in patients revealing allergy, or those debilitated or cachectic. 21 references.—*Author's abstract.*

ESOPHAGOLOGY

Esophageal Atresia with Tracheoesophageal Fistula. Epidemiologic and Teratologic Implications. *Theodore H. Ingalls and Richard A. Prindle, Boston, Mass.* New England J. Med. 240: 987-94, June 23, 1949.

Congenital atresia of the esophagus must be regarded as primarily genetic or as being acquired in utero, since it is present at birth. In reviewing the records of 107 infants with this anomaly the authors discovered no case in which it had appeared in successive generations or had recurred in the same generation of a family. In 102 cases there was an associated tracheoesophageal fistula and in many cases anomalies of the cardiovascular system, gastrointestinal, genitourinary, respiratory and skeletal systems. These defects are believed to be acquired in early fetal life, the first abnormal deviations having been observed about the fifth to the sixth week. Assuming this interpretation to be correct the "biologic pattern" of tracheoesophageal fistula would seem analogous to that of mongolism, except for basic differences in the stages and organs involved by the disease. Among the maternal factors indicated as significant is hydramnios. There were twins in 4 cases, antepartum hemorrhage in 6 cases, and acute infectious disease or metabolic disturbances during the first trimester of pregnancy in 6 cases. This departure from normal development in the fifth or sixth week of pregnancy is believed to be caused by agents exerting their influence through the mother or via the placenta. Further investigation of this hypothesis is urged. 38 references. 6 tables. 4 figures.

Congenital Atresia of the Esophagus with Tracheo-Esophageal Fistula Treated by Primary Esophageal Anastomosis. Report of 8 Cases. *William M. Ashe and William D. Seybold, Mayo Clinic and Mayo Foundation, Rochester, Minn.* Proc. Staff Meet., Mayo Clin. 24: 327-33, June 8, 1949.

Primary esophageal anastomosis was employed in 8 cases of congenital atresia of the esophagus with tracheo-esophageal fistula. Vogt's classification of the pathologic changes involved is presented and a tabular analysis of the cases. The only associated anomaly in this series was a right subclavian artery springing from the ascending aorta and passing to the right in front of the vertebral column at the level of the gap between the esophageal segments. This did not prevent satisfactory results from operation.

Preoperative care includes prevention of bronchial aspiration of mucus and saliva and prevention or correction of dehydration. The infant is placed head down in the prone position in an oxygen cradle. A high degree of humidity is important. Mucus and saliva are aspirated every 15 minutes with a soft rubber catheter, and parenteral fluids are administered. Penicillin is administered by intramuscular injection in doses of 30,000 units every 3 hours and 100 mg. of ascorbic acid and 2.4 mg. of vitamin K are given parenterally every day. Pre-operative blood transfusions were not needed in this series.

Ligation of the fistula and direct anastomosis of the esophagus are accomplished via the right posterior thorax in an extrapleural plane, under nitrous oxide, oxygen and ether anesthesia. A polythene tube is inserted into the ankle vein for administration of blood and fluids for 4 or 5 days preceding gastrostomy. Through a vertical incision along the vertebral border of the scapula, short segments of the posterior ends of the third to sixth ribs are excised. The intercostal structures are ligated and divided and the mediastinum reached extrapleurally by raising the pleura from the posterior wall of the chest. Following identification of the vagus nerve, trachea and blind upper end of the esophagus, the lower end of the esophagus is located and divided at its point of attachment to the posterior surface of the trachea. The tracheal opening is sutured and an end-to-end esophageal anastomosis performed over a temporary catheter splint, using 2 rows of interrupted silk no. 00000. Extensive mobilization of the upper segment of the esophagus affords sufficient length to permit an end-to-end anastomosis. A catheter through the retropleural space from the site of the anastomosis is brought out through the incision for temporary closed drainage. Negative pressure is maintained at about 15 cc. of water to favor pulmonary reexpansion. The catheter splint is removed immediately after operation, the infant is placed in an oxygen cradle and is returned to the ward. Gastrostomy was done at the time of anastomosis in 1 case, after 48 hours in 5 cases. The other 2 patients died before gastrostomy could be performed.

Constant postoperative nursing care is imperative to prevent aspiration and asphyxia and maintain nutrition. Frequent aspiration of mucus and saliva, adequate oxygen and maintenance of a high degree of humidity are important. Penicillin is administered by intramuscular injection and by nebulization. Vitamin C and K are continued. Whole blood, 50 to 75 cc., is administered every 2 or 3 days for about 2 weeks and then as indicated. In administering parenteral saline, care must be exercised to prevent edema. Ten days after operation roentgenoscopic and roentgenographic examinations after introduction of a little iodized oil into the esophagus are undertaken. If no leak is demonstrable, sterile water and 5% glucose solution may be given orally, with rapidly increasing amounts up to the full formula. The gastrostomy tube can usually be removed from 3 to 5 weeks after operation.

There were two deaths in the series. Six patients are alive and well. One patient developed atelectasis before operation. In two cases leaks developed, healing after 72 and 30 days respectively. Gastrostomy was performed in 6 cases. Stricture developed in 2 cases. Primary healing occurred in 4 cases. 8 references. 1 table. 2 figures.

A Case of Malformation of the Esophagus (*Un cas de malformation de l'oesophage*). H. Draps, Hôpital Brugmann, Brussels, Belgium. Bruxelles-méd. 28: 2499-2505, Nov. 28, 1948.

In the case reported, the infant immediately vomited any fluid taken, showing severe cyanosis at such times. When an attempt was made to introduce an opaque substance through a small sound, the instrument could not be

passed more than 10 cm. beyond the lips, and the opaque substance did not enter the esophagus but passed upward along the sound and entered the trachea and the lungs, giving a typical bronchogram. The last x-ray showed a small amount of the opaque substance in the stomach which was dilated and filled with air. A gastrostomy and retrograde catheterization of the esophagus was done. This was followed by bronchopneumonia and death. At autopsy the esophagus was found to be imperforate, ending in a cul-de-sac in the region of the larynx; on the posterior surface of the trachea there was an opening of a narrow passage way leading to the cardia and the stomach. The lungs showed extensive bronchopneumonia.

A review of the literature shows that several types of congenital atresia of the esophagus, with and without tracheo-bronchial fistula, have long been recognized; and the condition has been considered necessarily fatal until recently. In complete atresia, a fatal outcome is inevitable, but in cases of regional atresia, various methods of surgical treatment have been devised within the past few years that have resulted in recovery in a number of cases. 11 references. 3 figures.

Flexi-Rigid, Optical Esophagoscope. *A. Ray Hufford, Grand Rapids, Mich.* Gastroenterology 12: 779-81, May 1949.

Of a number of flexible optical esophagoscopes and various types of obturators for rigid scopes devised by the author, the latest model appears to be most practical and can be introduced in the same manner as the flexible gastroscope and as easily. A standard Jackson esophagoscope with an internal diameter of 9 mm. is supplied with a flexible spiral of stainless steel, extending 6 in. beyond the open end of the scope and terminating in a flexible pointed rubber finger. The spiral is attached to a metal base filling the beveled end of the scope and fastened to a metal rod of the same length as the scope. A proximal metal cork secures the flexible part during passage of the scope. When the latter has reached the desired depth, the flexible obturator is withdrawn and the optical tube of an Eder Flexi-Rigid gastroscope in a metal sheath $\frac{3}{4}$ the length of the scope is introduced to the desired depth. The fixed sheath permits focal adjustment of the optical tube and keeps it centered. The image thus viewed is 8 times as large as that seen in the rigid scope. This optic system can be used in any standard rigid esophagoscope with an internal diameter of 7 to 10 mm. by changing the size of the retaining sheath. With its aid the esophagoscope can be introduced with greater ease and safety, employing the same technic and position as in gastroscopy with the flexible gastroscope. The object is protected from mucus and mucosa by the end of the scope. The optical system and sheath can be withdrawn and replaced when necessary for medication, aspiration, or cutting biopsy. 3 references. 3 figures.

Construction and Use of a Safe Diagnostic Optical Esophagoscope. *Rudolf Schindler, Los Angeles, Calif. Gastroenterology 12: 355-67, March 1949.*

Open tube esophagoscopy not infrequently leads to fatal hypopharyngeal tears. Tubes equipped with a flexible rubber will not produce such a lesion because the rubber finger will bend if a spasm of the constricted muscle of the pharynx is encountered. However, the diameter of such a tube must not be too large. Tubes of 10 to 11 mm. diameter are safe. Clear visualization with such a diameter is possible only if a magnifying apparatus is added. Such a diagnostic esophagoscope with obturator and optical system is built by the American Cystoscope Makers of New York and consists of the outer tube with obturator, an inner tube with two spreading "shells" which remove the mucosa from the objective of the optical system and the optical tube which carries the light and air channels. Such an instrument can be introduced easily and without danger after careful local anesthesia of the throat. Left lateral position with reversed Trendelenburg position is recommended. In this position mucus and blood flow down into the stomach instead of soiling the visual field. The examination with this instrument is described. 12 figures.—*Author's abstract.*

Flexible Tube Esophagoscopy. *Edwin Boros, New York, N. Y. Gastroenterology 11: 879-82, Dec. 1948.*

The main hazard to instrumentation of the gullet is the cricopharyngeus muscle. With a new instrument which embodies softness and extreme movability of its spiral tip, it has been possible to effect safe, easy, successful esophagoscopies in over 350 patients. Patients chiefly with lung tumor, tracheal distortion, pleuritic effusion, high or low-lying esophageal lesions, and mediastinal tumor were subjects of intubation.

Patients with fever, bad hearts, dyspnea, aneurysm, and extreme debility are to be excluded. A high-lying lesion contraindicates introduction of the flexible esophagoscope; visual guidance at the outset is needed in such patients. Food and water are withheld the morning of the test. Two doses of 1 1/2 gr. of luminal are given hypodermically at one hour intervals followed in one-half hour by 1/4 gr. of morphine sulfate and 1/100 gr. of atropine sulfate. One-half hour later the throat is sprayed with 10% cocaine, and this is repeated after five minutes. It is important that the patient be advised to relax; lying on his left side with his head on a pillow, the flexible tip is guided towards the pharyngeal wall. The patient is told to swallow and pressure of the instrument is effected while an assistant extends the patient's head. A straightening combination, consisting of an open cannula and olive-tipped trocar, is inserted into the lumen as a to and fro movement of the outer tube favors installation of the latter. The obturator is then withdrawn. This leaves the outer tube and rigid cannula in situ. Deeper insertion into the esophagus occurs under direct visual guidance. Care is needed in the lower part, since the organ goes anteriorly and to the left. Partial withdrawal of the straightening cannula reestablishes a pliable tip.

which is easily insinuated into the gastric cavity. At the close of the examination the instrument is withdrawn, during which continued inspection of the interior of the swallowing tube is done.

Use of the flexible esophagoscope does not imply blind introduction; visual aid is used as early as possible. The instrument is brought into a straight line as soon as the cricopharyngeus is penetrated. There was never need in the 350 cases for filiform bougies or general anesthetics while using the flexible tube. At no time should force be used. Sterility of instruments must be maintained. 0 references.

Two Stage Pharyngo-Esophageal Diverticulectomy. Indications and Technic. *Raymond W. McNealy and Jacob A. Glassman, Cook County Hospital, Chicago, Ill.* J. Internat. Coll. Surgeons 12: 120-26, March-April 1949.

In a previous paper the authors described a method for handling pharyngo-esophageal diverticula by an original one stage operation. There are, however, certain diverticula of this region which do not lend themselves to a one stage operation; and there are certain patients who, by reason of their poor reparative powers and general debility, are unsuited to an operation which requires excellent reparative powers and a good nutritional state to insure a low morbidity and mortality.

The size, arrangement, and condition of the diverticulum may indicate the need for performing a special two stage operation. When a large diverticulum distorts the structure from which it takes origin, it may interfere with the passage of a Levin tube into the stomach and makes it impossible to feed the patient by gavage. In some instances, the distortion is so great, that almost everything the patient eats passes immediately into the diverticulum because the latter opening is in a more favorable position and is larger than that of the esophageal lumen which may be compressed by the distended sac. These large diverticula may even make it more difficult to design excision and closure so that accurate apposition can be obtained without distortion or stricture formation. They also select for two stage operations those diverticula complicated by inflammation, ulceration and perforation. Not only do they prefer to do a two-stage procedure in these instances, but they believe that a one-stage diverticulectomy is contraindicated.

In the first stage of the two-stage operation for pharyngo-esophageal diverticulum, the sac is freed, brought out laterally and a diverticulopexy done. The authors employ silk sutures to keep the fundus of the diverticulum suspended high in the neck so that the fundus is on a higher level than the cricoid cartilage. The fundus of the sac is sewn to the deep cervical fascia anterior to the sternocleidomastoid muscle. This insures adequate emptying because the neck of the sac will be at a lower level than the fundus. To avoid fistula formation and serious infection, the silk sutures are inserted only in the submucosa of the sac. In one instance a patient was observed who developed an anaerobic infection caused by organisms carried by sutures, which penetrated the mucosa of the sac. The infection spread in the tissues of

the neck and face. The condition was ultimately brought under control, but the patient's convalescence was considerably delayed. To encourage the formation of a limiting plastic wall about the neck of the sac, a small iodoform packing has been found very useful. This packing is placed along the inferior margin of the diverticulum and extends from the lateral edge of the esophagus to the skin edges where it is brought out and transfixed with a small safety pin. This packing is left in place for about five days. Along the line of the packing, adhesions are formed between the sac and the surrounding structures. These adhesions, along with the anchoring sutures, prevent the sac from descending into its original position. If it has been impossible before fixation of the sac in the neck to pass a Levin tube down the esophagus, it can now be done in practically every instance.

After a period of two or more weeks, if the patient's nutritional balance has been restored and his physical condition warrants it, the second stage of the operation may be undertaken. While it is true that most diverticula can be resected within the first month following their suspension in the neck, patients have gone as long as one year before they found it convenient to return for the second stage of the operation.

METHOD

1. The old scar is excised with an elliptical incision, being careful not to cut into the fundus of the diverticulum.
2. The fascia along the anterior border of the muscle is divided and the muscle retracted laterally exposing the carotid sheath.
3. The lateral border of the thyroid gland is exposed and its margin clearly defined.
4. The carotid sheath, its vessels and nerve, are retracted laterally by a ribbon retractor. The thyroid gland and its underlying larynx and trachea are retracted medialward.
5. The loose areolar tissue between thyroid and the carotid sheath supports the inferior thyroid artery which usually should be ligated and divided.
6. If the lateral margin of the esophagus is now identified, the position of the diverticulum can be established by remembering that its neck is at the level of the cricoid cartilage and its fundus extends downward between the posterior wall of the esophagus and the anterior surface of the prevertebral fascia.
7. Careful traction on the wall of the diverticulum with a Babcock (or similar non-traumatizing forceps) will bring the sac into the more superficial regions of the incision where its size and conformation can be clearly studied.
8. The neck of the sac now is clearly exposed and by lifting gently it will be found that it is possible to rotate the pharyngo-esophageal area into direct vision. The extent of the rotation of the esophagus and trachea around the longitudinal axis of these structures has been studied in the living and fresh postmortem specimens. It is found that with moderate tension this rotation amounts to between 45 and 90 degrees. The maneuver will bring the neck of the sac into a completely visible and accessible position. The recurrent

laryngeal nerves are not rendered more vulnerable by this rotation; on the contrary this maneuver permits a better view of the proximal nerve and the distal one is not drawn into the field of danger.

9. The muscle fibers of the boundaries of the neck of the diverticulum are now clearly separated from the sac wall with maneuvers which will preserve as many of them as possible, because they can be utilized subsequently to reinforce the suture line of the repaired defect.

10. It is important that the proximity of the inferior recurrent laryngeal nerves be kept in mind.

11. After a careful survey of the neck of the sac a point is selected at its lateral margin on a level with the cricoid cartilage and a fine forceps is applied transversely. A knife is used to divide the tissue proximal to the jaws of the forceps. This will make the initial opening into the esophagus. This opening is now sutured with one or more interrupted fine silk sutures. A second forceps is now applied just beyond the first forceps, being sure to continue at the same level and to maintain the same transverse character of the division. As subsequent forceps are applied and the tissue divided proximally to them, the opening in the esophagus is sutured by carefully spaced interrupted sutures until the entire diverticulum has been severed from the pharyngo-esophageal junction.

This rather methodical clamping, division, and suturing, results in a secure closure of the defect in the esophagus without the danger of undue narrowing and constriction, and without leaving crushed and devitalized tissue in the grasp of the sutures. The well-spaced interrupted sutures bring the mucosa into intimate apposition and secure the holding submucosal layer against separation by their distribution of the tension evenly across the posterior wall of the viscus. The diverticulum has been detached from its base in a transverse diameter so that postoperative stricture formation is greatly lessened.

12. The muscle fibers of the cricopharyngeus and the uppermost fibers of the esophagus are now drawn over the first suture line with interrupted sutures.

13. A small soft rubber drain may be inserted down to the lateral margin of the thyroid gland to provide a pathway along which blood or serum may escape. It will likewise form a pathway of easy exitus for any leakage, should it occur. In no instance should the wick be carried down to the immediate vicinity of the suture line where it would inhibit the reparative processes by carrying away the plastic exudate from the suture line. 5 figures.—*Author's abstract.*

Results of Treatment of Perforation of the Esophagus. *Edward E. Jemerin, Mount Sinai Hospital, New York, N. Y. Ann. Surg. 128: 971-75, Nov. 1948.*

The results obtained in 69 cases of perforation of the esophagus by foreign bodies, instrumentation, or both, covering the period from 1925-1947, are presented. The gross mortality was 36.2%. The cause of death in almost all cases was mediastinal infection. When listed chronologically,

a marked improvement in results with the passage of years was apparent. Prior to 1936, the mortality was 77.3%; since 1936, only 17%. Further breakdown into operative and non-operative cases shows the improvement to parallel an increase in surgical intervention. Prior to 1936, only 50% of the cases were treated surgically, whereas since 1936, 89.4% were treated surgically. For the entire series, both before and after 1936, the operative mortality was 26.4%, as compared to 68.7% for those not operated upon.

Operation alone, however, does not tell the whole story, as indicated by an operative mortality of 72.7% before 1936, as compared to 14.3% since. To be most effective, surgery must be prompt. Ideally, operation should be performed immediately upon recognition of the existence of a traumatic laceration of the esophagus, and certainly before infection has descended into, or become full blown, in the mediastinum. Prior to 1936, only 3 of 11 surgically treated cases were operated upon less than 1 week after perforation. Since 1936, 35 of 42 cases were operated upon within the first week, and in 2 of them operation was performed within 2 days of the injury. The marked improvement in the mortality, accordingly, is to be attributed not only to the recognition of esophageal perforation as a surgical lesion, but to the necessity of treating it as a surgical emergency and operating as promptly as possible. Actually, with prompt surgical intervention, mortality from esophageal perforation should be rare, occurring only in unpreventable situations, such as a fulminating infection following extensive laceration of the esophagus, serious complicating lesion, or a patient admitted with a very widespread infection long after perforation. Penicillin and the other chemotherapeutic agents should be used only as an adjunct to prompt surgery. While a few of our cases recovered with penicillin therapy alone, in most, deterioration and spread of infection continued despite the administration of the antibiotic. This resulted in a death in 1 case, a near death in a second, and in many cases in the loss of valuable time as the lesion continued to develop despite penicillin. 2 references. 2 tables.—*Author's abstract.*

Foreign Body in Thyroid Following Perforation of Esophagus. *Edward E. Jemerin and Joseph S. Aronoff, The Mount Sinai Hospital, New York, N. Y. Surgery 25: 52-59, Jan. 1949.*

Foreign bodies perforating the esophagus ordinarily enter the retrovisceral space, setting up infection there. The site of perforation is usually in the neck at the esophago-pharyngeal junction. Rarely, the direction of perforation is such that the foreign body enters the thyroid gland directly. There is relatively little contamination of the retrovisceral space and abscess formation takes place chiefly in the corresponding thyroid lobe.

Esophagoscopy in early cases or in those without pain referable to the esophagus showed a fairly normal esophageal mucosa. In those with pain the walls appeared thicker, with extensive leukoplakia in the lower third. In the furrows between patches of leukoplakia, ulceration could be seen and near the lower end more diffuse ulceration was present from which exudate could be stripped. Varying degrees of stenosis were observed, and

immediately below the stenosed area gastric mucosa was always present, indicating a shortening of the esophagus and extension of stomach into the chest for several centimeters.

The interpretation was made that loss of esophageal function is one of the early visceral lesions in diffuse scleroderma. The interference with ability to empty itself is usually followed by a chronic esophagitis, due probably to regurgitated gastric contents with resulting leukoplakia, ulceration and stenosis. Two factors were present which may have contributed to the shortening of the esophagus, the diffuse sclerodermatic process and the chronic esophagitis with localized ulceration and fibrosis at the lower end. 17 references. 1 table. 10 figures.—*Author's abstract.*

Trial of Treatment of Cancer of the Larynx and Esophagus in Men with Synthetic Estrogens. (*Essais de traitement des cancers du larynx et de l'oesophage chez l'homme par les oestrogenes de synthèse.*) Michel Hetroy, University of Amiens, France. Concours méd. 70: 2255, Nov. 13, 1948.

Because cancer of the larynx and cancer of the esophagus are of comparatively rare occurrence in women and because of the results obtained in the treatment of cancer of prostate with estrogens, synthetic estrogens have been used in the past year in the treatment of 7 cases of cancer of the esophagus and 6 cases of cancer of the larynx in men. In addition, radiotherapy was employed, and also salts of magnesium and copper, which are routinely used in the author's practice in all cases of cancer. The synthetic estrogen (cycloestrol or stilbene) was given by mouth or by injection in a dosage of 5 to 15 mg. daily. With this dosage the only side-effect noted was a slight enlargement of the breasts. In further trials of this method it is planned to increase the dosage to 30 to 40 mg. daily, gradually reducing it to 5 to 10 mg.

All the patients treated were in an advanced stage of the disease, with an inoperable growth, and had shown little response to the usual radiotherapy and medical treatment. But when estrogen therapy was combined with these other methods, definite improvement was noted very promptly. In cases of cancer of the esophagus, in which stenosis had been almost complete, the patients were able to take fluids and gruels easily after the third or fourth day of treatment. In cancer of the larynx, the adenopathy regressed, and laryngoscopic examination showed a regression of the primary lesions more definite than that observed with radiotherapy alone. In the cases in which pain had been a symptom, it was completely relieved. The patient's general condition also improved. But this improvement did not persist; after a few weeks or months, there was a recurrence of all symptoms, except that pain did not recur or was very slight; the primary lesion advanced rapidly. All of the patients with cancer of the esophagus have died, but 4 of the 6 patients with cancer of the larynx are living. Treatment of cancer of the larynx and esophagus in men with estrogen is evidently only a palliative treatment, which, however, renders the patient comfortable and prolongs life to some extent.

Combined Left Abdominal and Right Thoracic Approach to Resection of Esophageal Neoplasms. *Joseph E. Macmanus, University of Buffalo, Buffalo, N. Y.* *Surgery* 24: 9-16, July 1948.

Two cases are reported. The first, that of a 34 year old workingman with a history of dysphagia and weight loss of 3 months' duration proved to have an old chronic healed ulcerative condition of the mid-portion of the esophagus. The other case, a 67 year old laborer with a history of dysphagia and loss of weight of 4 months' duration proved to have a non-resectable carcinoma of the mid-esophagus.

Both patients were operated upon by the left abdominal, and right thoracic approach as described by Ivor Lewis (*Brit. J. Surg.* 34: 18, 1946). This approach was found to be less tedious than through the left thorax, preserved the function of the phrenic nerve bilaterally, did not require mutilating incisions in the diaphragm, permitted cutting of the esophagus at any desired level and subsequent anastomosis with interference by the aortic arch, resulted in less total trauma and could be done in less time. The tussive power was not interfered with. Thus the operation seems indicated in those cases of the middle and lower thirds of the esophagus where the new growth does not involve the diaphragmatic crura. Adenocarcinoma of the gastric cardia with esophageal extensions with possible infiltration into the left leaf of the diaphragm are doubtfully indicated, that neoplasm infiltrating the arch of the aorta or the root of the lung is not regarded as resectable.

The first of the above patients recovered from the operation and left the hospital 3 weeks later, the other, a chronic nephritis case, 7 days after the exploration. 3 references. 2 figures.

MISCELLANEOUS

Infra-Orbital Neuralgia. *G. C. Knight. J. Laryng. & Otol.* 62: 756-65, Dec. 1948.

Paroxysmal infraorbital neuralgia occurs in two forms: it may appear as a presenting feature of trigeminal neuralgia and spread to involve other trigeminal branches, or it may arise from local causes following dental extractions in the canine region or other operations in this region, in which case the pain will be localized to the infraorbital area. Complete relief is obtained by infraorbital avulsion where the cause is local, but this is unsatisfactory in trigeminal neuralgia. Paroxysmal explosive attacks of pain of short duration simulating trigeminal neuralgia occur in cases with a local origin. Alternatively the pain may be continuous with exacerbations and remissions. Local pain has followed alveolectomy and this is relieved by infraorbital avulsion, if the pain has been localized to the anterior part of the upper jaw. In post-herpetic neuritis the pain is usually widespread and infraorbital avulsion is seldom effective. Such avulsion is also ineffectual in relieving chronic pain from infection of the paranasal sinuses, except where pain is confined to the maxilla and canine fossa and upper teeth. Deep pain

in the region of the eye, the side of the nose, and hard palate requires an operation on the sensory route of the trigeminus.

In sphenopalatine neuralgia there is pain in the alar region of the nose spreading to the cheek and infraorbital region. At the height of the attack the pain is felt deep inside the nose and in the hard palate and gums. It is of a continuous burning type of variable duration, the paroxysms lasting longer than those of trigeminal neuralgia. There may be loss of taste in the anterior tongue, as well as reddening of the conjunctiva and secretion of tears. The syndrome does not indicate intranasal disease, but may arise as a primary condition as a variant of the more usual trigeminal neuralgia. In treating the sphenopalatine syndrome, intranasal surgery should be done only when there is proven intranasal infection. Local measures involve cocaineization of the sphenopalatine ganglion, but the relief lasts only about one-half hour. This, however, may succeed in abating an attack. Injection of the ganglion is also uncertain and unsatisfactory. The safest method is that of Sluder who uses a straight needle introduced beneath the posterior tip of the middle turbinate 0.66 cm. from its posterior margin. Two cases of sphenopalatine neuralgia arising as a primary disease, and completely relieved by sensory route section of the trigeminus, are presented.

The Surgical Treatment of Peripheral Facial Paralysis in Fractures of the Cranial Base. *W. Behrman, Hälsingborg General Hospital, Hälsingborg, Sweden. Acta oto-laryng. 37: 187-90, April 1949.*

A case is reported in which there was a fracture of the labyrinth with severance of the facial nerve immediately below the geniculate ganglion. A free nerve graft was performed with good results.

Both a longitudinal fracture and a transverse fracture of the temporal bone may involve the facial nerve; the transverse fracture more often than the longitudinal fracture. In skull fracture the peripheral part of the facial nerve may be injured through rupture or compression. Typically, the transverse fracture produces immediate and total paralysis, while longitudinal fracture is more likely to produce partial and delayed paralysis. In making a prognosis, the principles which are used in judging pareses of other etiology should serve as a guide. When paralysis is complete and there has been no reason for immediate or early operation, surgery may be delayed for two months; in partial paralysis it may be delayed longer. Operative intervention consists of simple decompression, end-to-end suture, free nerve grafts, and if indicated, anastomosis of the facial and cranial nerves. 17 references. 1 figure.

INTERNATIONAL CONGRESS OF OTOLARYNGOLOGY London Meeting

The fourth International Congress of Otolaryngologists held at King's College, London, in July was attended by 800 medical men practicing the specialty. About 450 came from overseas and 40 countries were represented. Approximately 150 papers were read in four sessions sitting simultaneously,

on three general topics: (1) antibiotics and chemotherapy in the treatment of nasal sinusitis and its complications; (2) treatment of aural vertigo; (3) non-malignant strictures of the thoracic esophagus and their treatment. Mr. V. E. Negus presided.

Twenty speakers from about a dozen countries participated in the first discussion, over which Sir Alexander Fleming presided. Sir Lionel Whitby stated that despite the present use of antibiotics, the sulfa drugs still have a place in the therapy of nasal sinusitis because of their action on Gram-negative bacteria but their value was mostly prophylactic. While helpful in early infections, they proved disappointing in chronic infections unless free drainage was established. Penicillin had brought favorable results but to be used with success it had to be brought in contact with the infecting organisms locally and this proved difficult. Dr. H. P. Schenck of Philadelphia condemned the use of aerosols in the treatment of sinusitis because, although useful in the nasal passages, they were unable to enter the sinus cavities in sufficient concentration to be effective. A successful result can be obtained only by use of removal of obstructions to drainage and ventilation, shrinking of turbinal tissue, and sometimes displacement irrigation, in addition to chemotherapy.

The discussion on treatment of aural vertigo was opened by Professor F. R. Nager of Zurich and approximately twenty speakers participated. Professor C. Nylen of Uppsala gave a survey of 180 cases treated in the last five years. About 70% treated conservatively recovered or improved considerably; operative treatment was used in only a few cases. Dr. W. J. McNally of Montreal reviewed 200 cases observed over a ten-year period. In 50 of these cases there was definite evidence of cardiovascular disease, indicating the important role this disease and disease of the central nervous system plays in the etiology of this condition. A history of allergy was reported in 50 patients. Sedation as a sole therapy had only a temporary result. A modified salt-free diet and administration of potassium chloride was prescribed in half of the patients. About 50% of 30 patients receiving histamine were relieved from dizziness and hearing was improved. About three-fourths of the patients receiving nicotinic acid improved. Nine patients were treated by resection of the eighth nerve; 5 were cured but surgery must be restricted to carefully selected cases. Dr. E. P. Fowler reported use of streptomycin in treatment of 8 patients who refused surgical therapy; all had done well except 1 who had recurrence a year later.

Describing the changes in aural surgery, Mr. T. E. Cawthorne of London stated that the greatest advance had been the demonstration that non-suppurative conditions of the temporal bone are operable without incurring subsequent infection if the rules of aseptic surgery are observed. The otologist is now able to restore equilibrium to the unbalanced and give hearing to the deaf.

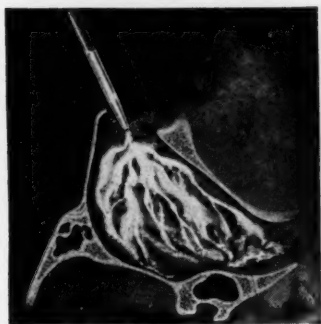
The president of the Congress, Mr. V. E. Negus opened the discussion on non-malignant strictures of the esophagus and pointed out the value of the

Tucker dilating bag used with the esophagoscope. Dr. Gabriel Tucker of Philadelphia reported observation of cases during the past 25 years, including 36 cases of short esophagus, 63 of stricture caused by caustic burns and in a few cases by trauma and congenital deformity. He illustrated the procedure of continuous string retrograde dilatation in patients with a gastrostomy. Dr. Chevalier L. Jackson of Philadelphia recommended the use of dilatation with esophageal bougies in simple stenosis due to burns but in multiple strictures and in single strictures in children he considered the retrograde dilatation method of Tucker safer and more efficient. In cases of less than a year's duration he felt that the passage could be restored under fluoroscopic guidance even though the patient was unable to swallow well. Professor Odd Opheim analysed treatment methods used in burn of the esophagus in two hospitals of Oslo during a five-year period. Of 132 patients observed, 81 were children less than 3 years old. In cases showing distinct but not deep-seated corrosion, 39 patients were followed up and 31 found symptom-free; 7 had marked but not severe swallowing difficulties; 1 had died. In 39 having major corrosive difficulties, 28 were symptom-free, 7 had swallowing difficulties, 3 had died. In these latter cases an indwelling tube was introduced and kept in place for at least 8 weeks. Dr. P. H. Holinger of Chicago advocated use of mercury-filled bougies in the dilatation treatment, indwelling tubes having a tendency to postcricoid ulceration.

The common cold was also discussed and Dr. E. P. Fowler of New York pointed out that in a large number of cases colds are of neurogenic origin due to overaction of the sympathetic system. He recommended use of physostigmine in treatment rather than sulfadiazine or penicillin. Dr. B. M. Kully of Los Angeles noted the incidence of hypertrophy of the adenoids in adulthood and its influence on development of catarrhs, low-grade fevers and unexplained headaches and recommended the removal of adenoid tissue in the treatment of the common cold. Mr. J. I. Munro Black of Newcastle-upon-Tyne recommended use of penicillin in treatment of acute mastoiditis in children. Injections were continued until the swelling of the tympanic membrane disappeared, probably in 4 to 14 days. Penicillin was also used in treatment of acute suppurative otitis media to prevent formation of an abscess. Mr. A. Tumarkin of Liverpool described the operation of trans-meatal attico-antrotomy which he had used in 50 cases of this disease with no fatal results. Although not recommending its use for treatment of acute infections, he declared it adequate for all "cold" surgery and was using it for fenestration. Dr. A. J. Cracovaner of New York advocated bronchoscopy in all cases of bronchiectasis and in patients having a thick exudate in the bronchus for an unreasonable time; also in patients with a positive sputum but no other evidence of tuberculosis, and in asthma patients in whom other methods had failed, in order to determine if a bronchial obstruction were present.

Other papers were presented on the surgical treatment of cancer of the larynx and esophagus and on conservation of hearing, use of hearing aids and on vocal cord paralysis. (British M. J. 2: 276-279, 1949).

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1. Holder, H. G., and MacKay, E. M.: *Mil. Surg.* 90:509-518 (May) 1942.
2. Holder, H. G., and MacKay, E. M.: *Surgery* 13:677-682 (May) 1943.